

GAVIIDAE

Common Loon, *Gavia immer*

1 record: UWBM 3614, 2-egg set from Lake Wilderness, King County, collected 10 May 1886, extrapolated first-egg date 8 May (Julian day 128).

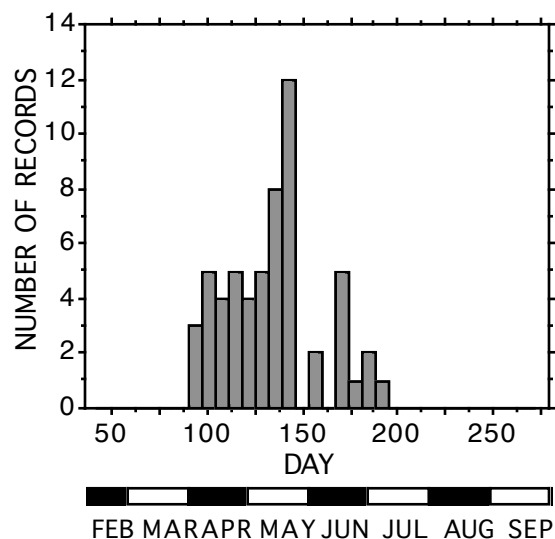
PODICIPEDIDAE

Pied-billed Grebe, *Podilymbus podiceps*

Records: 56. Burke Museum nest record cards=44 (class cards=17); egg sets=9; field notes=3.

Counties: Douglas=4; Grant=3; King=35; Okanogan=1; Pierce=5; Spokane=8.

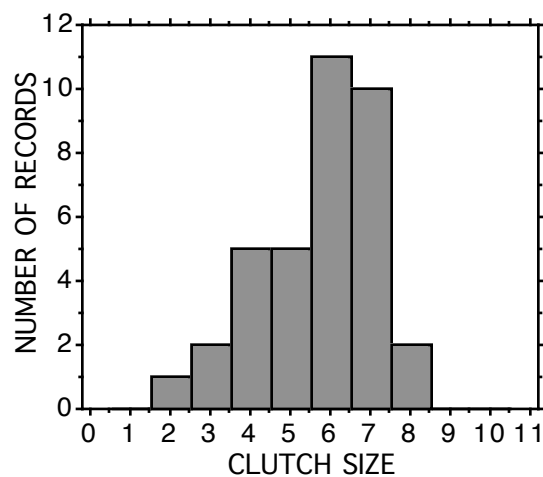
First-egg dates: Earliest 3 April (Julian day 93); latest 8 July (Julian day 189).



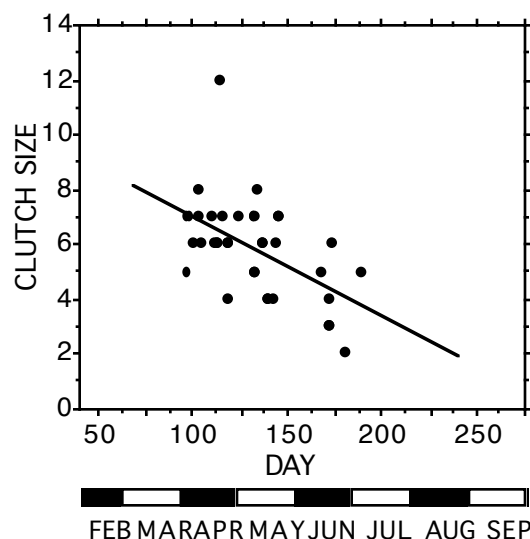
The secondary peak of first-egg dates in June and July could represent second broods.

Clutch size: 37 usable records. Mean 5.9 eggs. A single nest with 12 eggs was excluded because it likely represented laying by more than one female.

Two extended observations of laying sequence showed egg production every second day rather than daily.



Season and clutch size: The mean clutch size decreased by 3.1 eggs over the 96-days of nest initiation ($Y = 9.97 - 0.032X$; $r^2=0.34$; $p=0.0002$). Although shown in the figure, the 12-egg clutch was eliminated from this analysis as a likely case of conspecific parasitism.



Red-necked Grebe, *Podiceps grisegena*

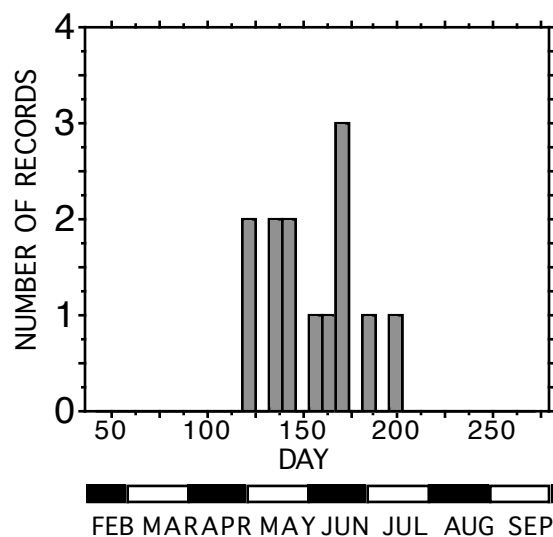
Records: 13. Burke Museum nest record cards=13.

Counties: Okanogan=2; Spokane=10; Stevens=1.

First-egg dates: Earliest 1 May (Julian day 121); latest 15 July (Julian day 196).

Clutch size: 4 usable records. Mean 4.5 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=1), 5 eggs (N=1), 6 eggs (N=1).

Season and clutch size: Not evaluated because there were just 4 usable records.



Eared Grebe, *Podiceps nigricollis*

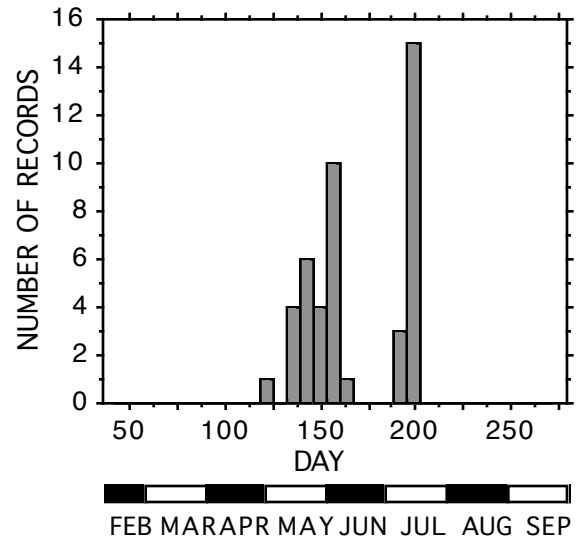
Records 44. Burke Museum nest record cards=37; egg sets=7.

Counties: Douglas=19; Grant=7; Lincoln=18.

First-egg dates: Earliest 3 May (Julian day 123); latest 17 July (Julian day 198). The distribution of first-egg dates covers a wide range of 75 days with a median date of 4 June (Julian day 155). The gap in first-egg dates could represent second broods or large differences in the start of laying in different colonies. Incubation through independence is 42 days.

Clutch size: 7 usable records. Mean 3.8 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=2), 5 eggs (N=2).

Season and clutch size: Not evaluated because there were just 7 usable records.



Horned Grebe, *Podiceps auritus*

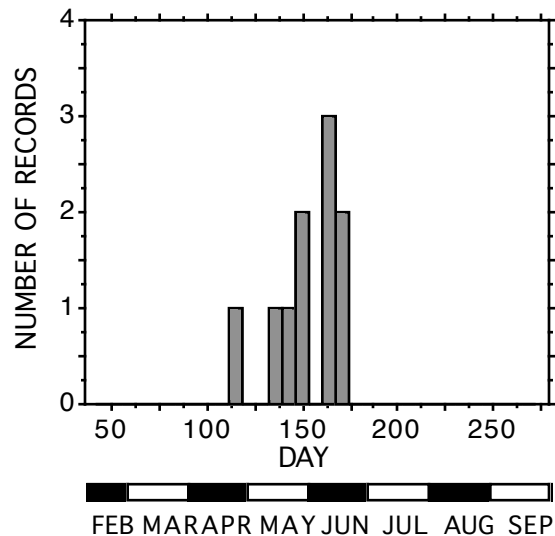
Recorded to breed in Washington, but no records in our files.

Western Grebe, *Aechmophorus occidentalis*

Records: 10. Egg sets=10.

Counties: Douglas=3; Grant=7.

First-egg dates: Earliest 24 April (Julian day 114); latest 18 June (Julian day 169).



Distribution of first-egg dates is unimodal with an 8-week season. The very similar Clark's Grebe (next account) now breeds on Potholes Reservoir, Grant County. Its status in the state at the time the 7 Grant County egg sets were collected is unknown.

Clutch size: 6 usable records. Mean 4.5 eggs. Distribution: 3 eggs (N=3), 5 eggs (N=2), 8 eggs (N=1).

Season and clutch size: Not evaluated because there were just 6 usable records.

Clark's Grebe, *Aechmophorus clarkii*

5 records: all Burke Museum specimens from Potholes Reservoir, Grant County.

UWBM 42991: female that had laid 3 eggs, extrapolated first-egg date 8 June 1987 (Julian day 159).

UWBM 35236: female that had laid 2 eggs, extrapolated first-egg date 8 July 1982 (Julian day 189).

UWBM 42995, 42998, 44677: males, each tending 2 or 3 small downy young, extrapolated first-egg date 16 to 18 June 1987 (Julian day 167-169).

HYDROBATIDAE

Fork-tailed Storm-Petrel, *Oceanodroma furcata*

3 records:

Burke Museum card:

A card from 1975 reports 3800 pairs on Bodelteh Islands in Clallam County, but no basis for the count is given.

Collected clutches:

WFVZ: 1-egg set, Clallam County, extrapolated first-egg date 4 June 1907 (Julian day 155).

WFVZ: 1-egg set, Clallam County, extrapolated first-egg date 4 June 1907 (Julian day 155).

Leach's Storm-Petrel, *Oceanodroma leucorhoa*

4 records, all Burke Museum cards:

Clallam County, Tatoosh Island: single chick, extrapolated first-egg date, 28 May 1956 (Julian day 148).

Clallam County, Tatoosh Island: single chick, extrapolated first-egg date, 28 May 1956 (Julian day 148).

Clallam County, Tatoosh Island: single chick, extrapolated first-egg date, 28 May 1956 (Julian day 148).

Clallam County, Tatoosh Island: 1 egg extrapolated first-egg date 28 July 1956 (Julian day 209); this egg could have been abandoned.

PELECANIDAE

American White Pelican, *Pelecanus erythrorhynchos*

8 records, all clutches collected on 22 May 1926 from a colony of 30 pairs nesting on a low island in Moses Lake:

PSM 11739: 2-egg set, Grant County, extrapolated first-egg date 20 May 1926 (Julian day 140).

UWBM 27003: 2-egg set, Grant County, extrapolated first-egg date 17 May 1926 (Julian day 137).

PSM 11737: 2-egg set, Grant County, extrapolated first-egg date 20 May 1926 (Julian day 140).

PSM 11738: 2-egg set, Grant County, extrapolated first-egg date 17 May 1926 (Julian day 137).

PSM 11740: 4-egg set, Grant County, extrapolated first-egg date of 20 May 1926 (Julian day 140); this record likely represents laying by more than one female and was noted to be the only 4-egg clutch in the colony.

PSM 11736: 2-egg set, Grant County, extrapolated first-egg date 17 May 1926 (Julian day 137).

WFVZ: 2-egg set, Grant County, extrapolated first-egg date 20 May 1926 (Julian day 140).

PSM 11735: 2-egg set, Grant County, extrapolated first-egg date 20 May 1926 (Julian day 140).

PHALACROCORACIDAE

Double-crested Cormorant, *Phalacrocorax auritus*

8 records:

Collected clutches:

Burke Museum colony records:

San Juan County, The Sisters, 4 pairs, 1975 (no day given).

PSM 11713: 4-egg set, Grays Harbor County, extrapolated date of first egg 20 May 1982 (Julian day 140).

Skagit County, Viti Rocks, 58 pairs, 1975 (no day given).

PSM 11714: 4-egg set, Grays Harbor County, extrapolated date of first egg 29 May 1982 (Julian day 149).

Jefferson County, Protection Island, 6 pairs, 1975 (no day given).

WSU 49-182: 3-egg set, Whatcom County, extrapolated date of first egg 13 June 1949 (Julian day 164)

Clallam County, Bodelteh Island, 200 pairs, 1975 (no day given).

WSU 49-183: 5-egg set, Whatcom County, extrapolated date of first egg 13 June 1949 (Julian day 164).

Brandt's Cormorant, *Phalacrocorax penicillatus*

Recorded to breed in Washington, but no records in our files.

Pelagic Cormorant, *Phalacrocorax pelagicus*

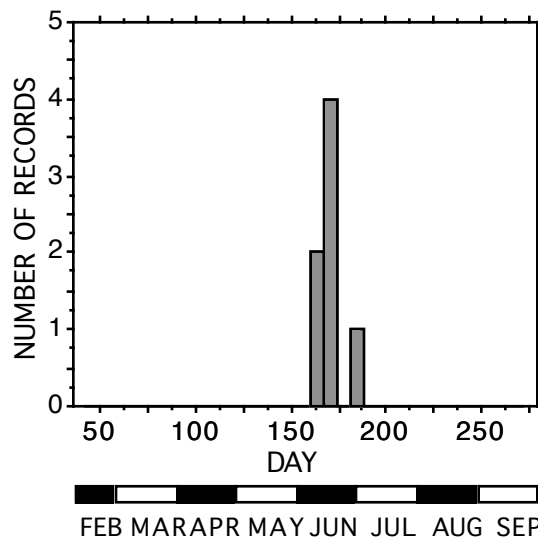
Records: 16. Burke Museum nest record cards=11; egg sets=5.

Counties: Clallam=4; Island=1; Jefferson=1; San Juan=5; Skagit=1; Whatcom=4.

First-egg dates: Earliest 15 June (Julian day 166); latest 4 July (Julian day 185). Extrapolated dates of first eggs are available for only 7 records with median date of 19 June. The remaining records are for colonies and contain no information on individual nests.

Clutch size: 5 usable records. Mean 3.2 eggs; distribution: 3 eggs (N=4), 4 eggs (N=1).

Season and clutch size: Not evaluated because there were just 5 usable records



ARDEIDAE

American Bittern, *Botaurus lentiginosus*

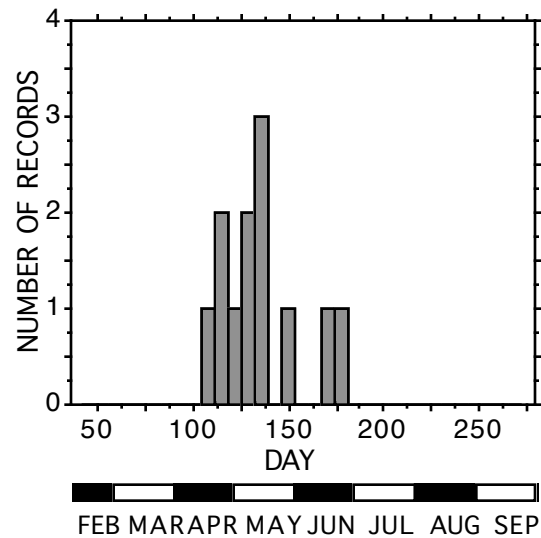
Records: 12. Burke Museum nest record cards=7 (class cards=6); egg sets=5.

Counties: Douglas=1; Grant=1; King= 7; Pierce=1; Snohomish=1; Whatcom=1.

First-egg dates: Earliest 18 April (Julian day 108); latest 24 June (Julian day 175). The unimodal distribution of first-egg dates suggests that second broods are not raised.

Clutch size: 7 usable records. Mean = 4.1 eggs. Distribution: 4 eggs (N=6), 5 eggs (N=1).

Season and clutch size: Not evaluated because there were just 7 usable records.



Green Heron, *Butorides virescens*

3 records, all Burke Museum cards:

King County, nest with 2 young, extrapolated first-egg date 15 May 1981 (Julian day 135).

King County, nest with first egg laid on 1 May 1981 (Julian day 121).

King County, nest with incubating adult, extrapolated first-egg date 2 May 1979 (Julian day 122).

Great Egret, *Ardea alba*

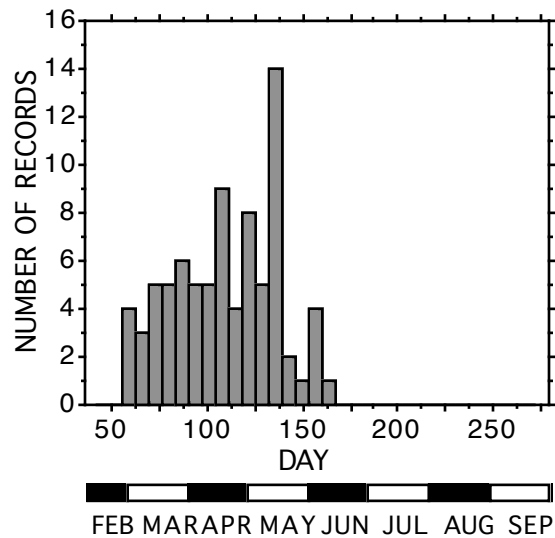
Recorded to breed in Washington, but no records in our files.

Great Blue Heron, *Ardea herodias*

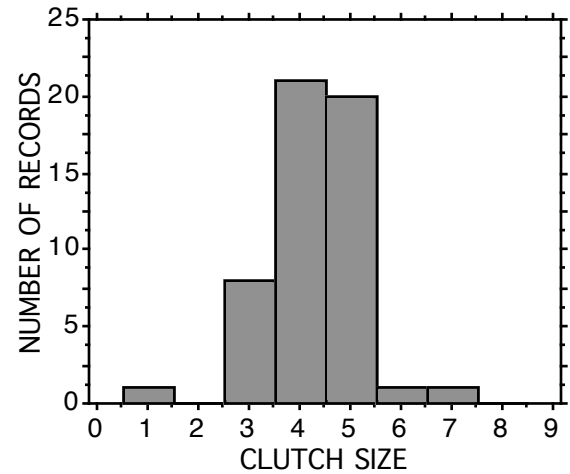
Records: 81. Burke Museum nest record cards=29; egg sets=52.

Counties: Clark=6; Cowlitz=7; Grant=12; King=1; Kitsap=1; Mason=1; Pierce=1; San Juan=2; Skagit=26; Snohomish=2; Spokane=11; Thurston=2; Whatcom=4; Yakima=5.

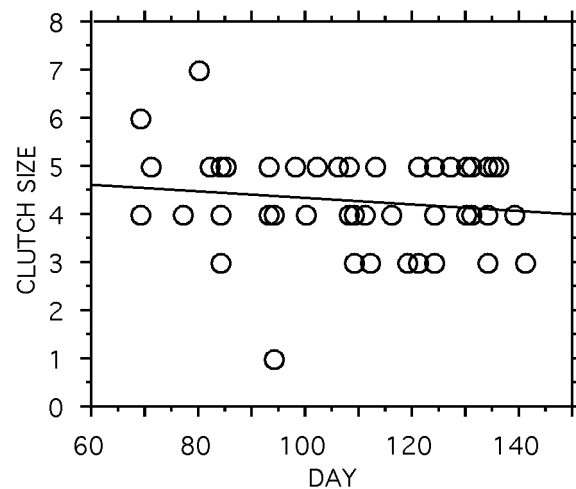
First-egg dates: Earliest 25 February (Julian day 56); latest 11 June (Julian day 162). First-egg dates are unimodal, extending over a 16-week season.



Clutch size: 52 usable records. Mean 4.3 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.219$).



Black-crowned Night-Heron, *Nycticorax nycticorax*

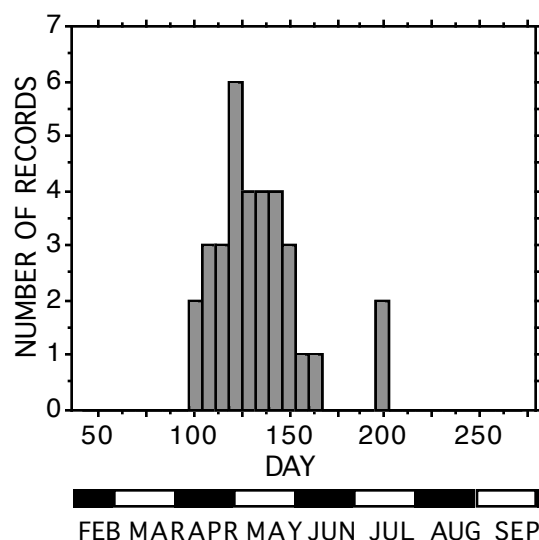
Records: 34. Burke Museum nest record cards=23 (class cards=17); egg sets=11.

Counties: Benton=1; Douglas=4; Grant=29.

First-egg dates: Earliest 10 April (Julian day 100); latest 15 July (Julian day 196). Excluding the two unusually late records for 15 July, laying was initiated over 62 days.

Clutch size: 14 usable records. Mean 3.7 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=5), 4 eggs (N=5), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



ANATIDAE

Trumpeter Swan, *Cygnus buccinator*

Trumpeter Swans winter in Washington, but the only breeders are birds introduced to Turnbull National wildlife Refuge in Spokane County.

1 record: A Burke Museum card for a nest in Turnbull National Wildlife Refuge, Spokane County. Incubation began 2 May 1977 (Julian day 122).

Mute Swan, *Cygnus olor*

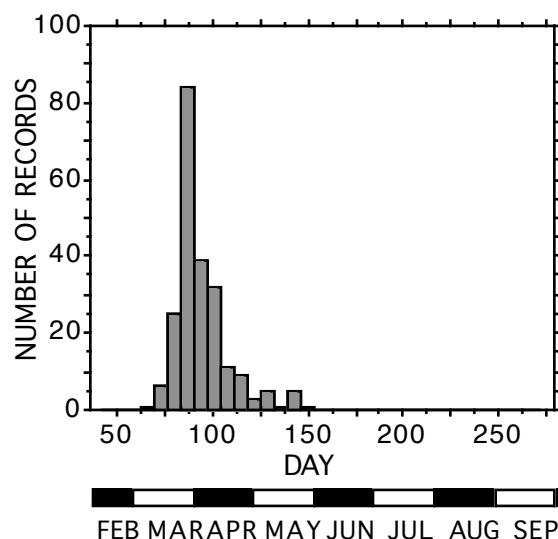
1 record: UWBM 40719, 5-egg set from Lake Washington, King County collected on 30 May 1985; extrapolated first-egg date 8 May (Julian day 128).

Canada Goose, *Branta canadensis*

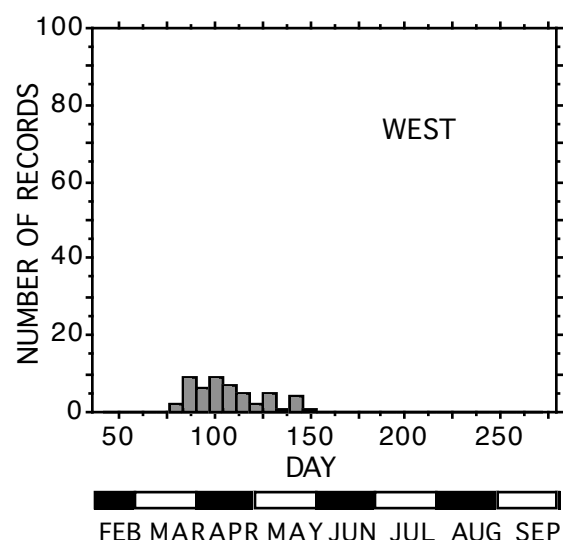
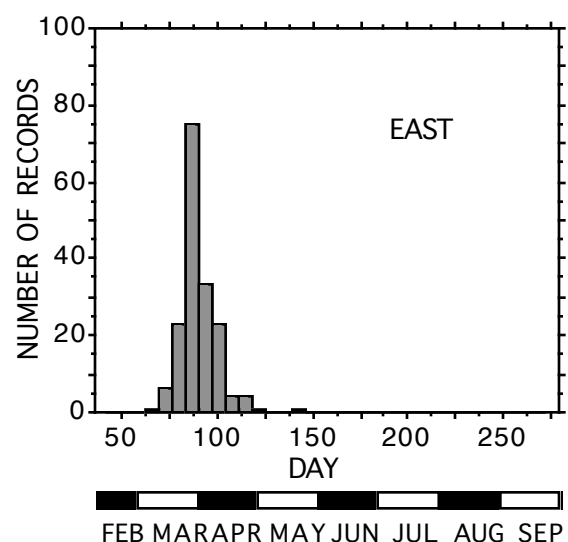
Records: 222. Burke Museum nest record cards=211 (class cards=37); egg sets=11.

Counties: Benton=156; Douglas=6; Grant=4; King=50; Okanogan=1; Pierce=1; Spokane=1; Walla Walla=1; Whatcom=2; Whitman=2.

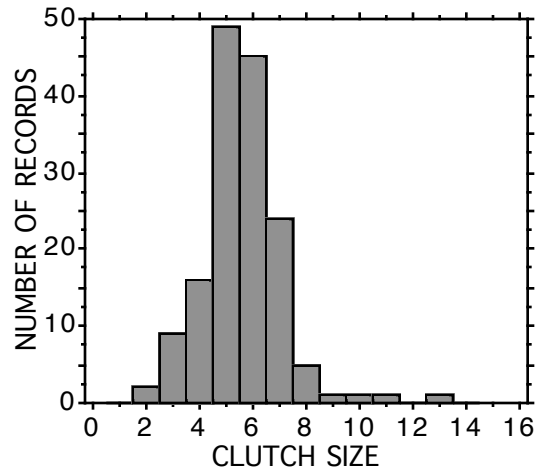
First-egg dates: Earliest 10 March (Julian day 69); latest 27 May (Julian day 147).



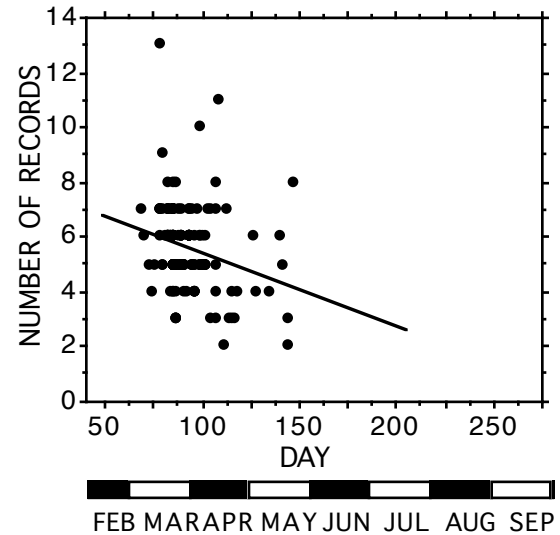
Essentially all records are for lowlands. The initiation of nesting seems more drawn out in western than eastern Washington, especially given the large difference in sample size. Consequently the median first-egg date is more than two weeks earlier in eastern than western Washington ($p < 0.001$). For eastern Washington the median first-egg date is 28 March (Julian day 87); for western Washington it is 13 April (Julian day 103).



Clutch size: 154 usable records. Statewide mean 5.59 eggs. Distribution: 2-13 eggs. Canada Geese are sometimes conspecific brood parasites (Rohwer and Freeman 1989), so the clutches of 9 or more eggs were likely laid by more than one female.



Season and clutch size: Clutch size decreases by 2.1 eggs over the 78 day season of nest initiation ($Y = 8.06 - 0.03X$; $r^2=0.063$; $p=0.002$).

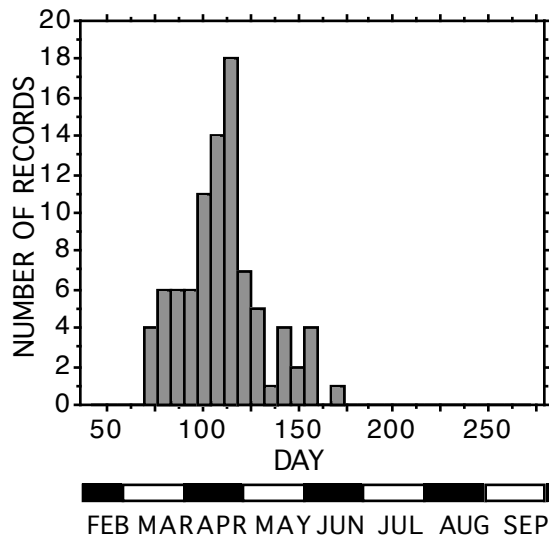


Wood Duck, *Aix sponsa*

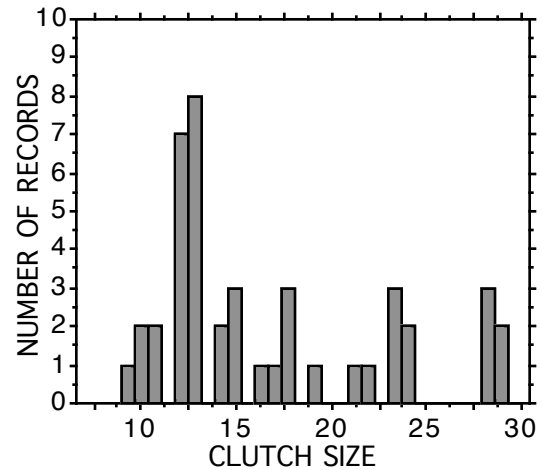
Records: 89. Burke Museum nest record cards=84 (class cards=25); egg sets=5.

Counties: Clark=1; Cowlitz=1; Pend Oreille=1; Pierce=72; Skagit=3; Spokane=10; Yakima=1.

First-egg dates: Earliest 14 March (Julian day 73); latest 19 June (Julian day 170). The onset of nesting is surprisingly gradual and the 12-week span of first-egg dates suggests that females that lose early clutches frequently re-nest.



Clutch size: 43 usable records. For all records mean=16.7 eggs, but many larger clutches reflect conspecific parasitism (Rohwer and Freeman 1989). For clutches of 14 or fewer eggs (N = 22) the mean clutch size was 12.1 eggs.



Season and clutch size: No significant change with extrapolated first-egg date was observed. However, nests with more than 14 eggs (N=21) were concentrated in the first half of the nesting season, (between 23 March, and 4 May, Julian days 82-124), suggesting that parasitism is more common early in the season. Early laying by parasites is expected when parasitic females also care for a clutch of their own. Thus they lay first as parasites, and then produce a clutch that they care for themselves. Three nests were observed to be parasitized by Wood Ducks because more than one egg was laid per day; the other 21 parasitized nests were judged so because they had clutches of more than 14 eggs.

Parasitism: Three nests from western Washington also contained Hooded Merganser eggs, two in 1977, and one in 1934. In these cases the Hooded Merganser was presumed to be the parasite because most of the eggs in the nest were Wood Duck eggs. However, these cases of "parasitism" could represent multiple Wood Ducks parasitizing the nests of Hooded Mergansers.

Green-winged Teal, *Anas crecca*

2 records:

A Burke Museum nest record card for 9 eggs from Grant County, extrapolated date of first egg of 9 July 1963 (Julian day 190).

PSM 11916: 10-egg set from King County, extrapolated first-egg date 25 April 1921 (Julian day 115).

American Black Duck, *Anas rubripes*

An introduced population breeds at the Everett sewage ponds, but no records in our files.

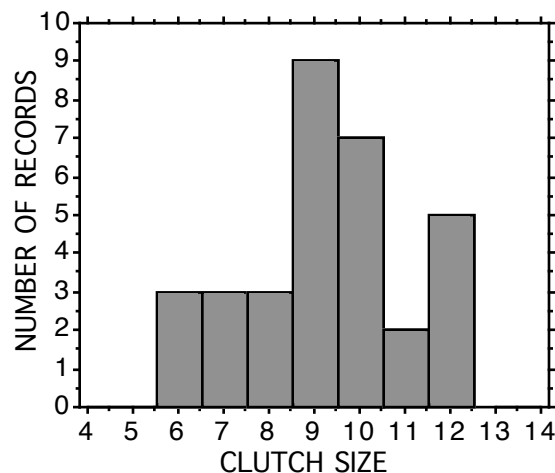
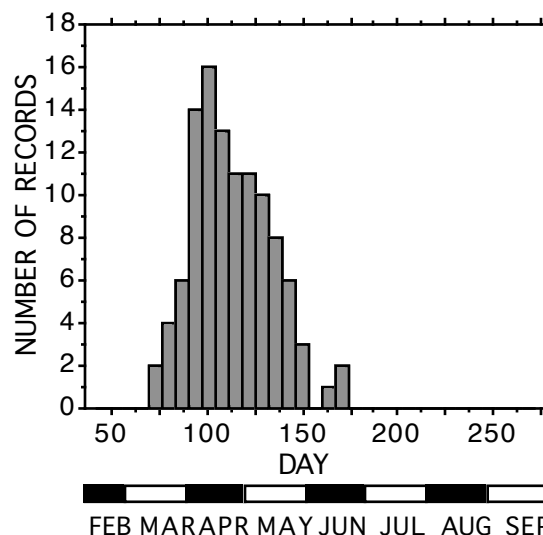
Mallard, *Anas platyrhynchos*

Records: 107. Burke Museum nest record cards=91 (class cards=46); egg sets=14; field notes=2.

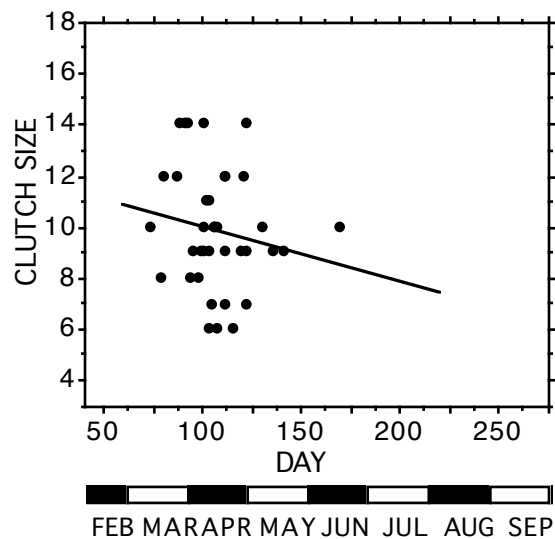
Counties: Benton=1; Clallam=1; Garfield=1; Grant=3; King=63; Kitsap=2; Lincoln=3; Okanogan=1; Pierce=10; Skagit=2; Snohomish=5; Spokane=5; Stevens=2; Thurston=1; Whatcom=1; Whitman=3; Yakima=3.

First-egg dates: Earliest 14 March (Julian day 73); latest 17 June (Julian day 170). Timing of nesting was similar for eastern (N=22) and western (N=85) Washington, and for high (N=9) and low (N=98) elevations.

Clutch size: 38 usable records. Mean 10.1 eggs. Distribution: 6 to 17 eggs. The clutch of 17 eggs, was assumed to represent a case of conspecific parasitism, and was omitted from the histogram and the analysis of seasonal variation in clutch size (Rohwer and Freeman 1989).



Season and clutch size: Clutch size appears to decrease by 2.1 eggs over the 97-day period of nest initiation ($Y = 12.2 - 0.02X$; $r^2=0.028$; $p=0.32$). This sample likely underestimates seasonal decline in clutch size because the sample was dominated by class cards, most of which are for April and May, before the end of the UW spring quarter in early June.



Parasitism: Two collected clutches contain Ring-necked Pheasant eggs: UWBM 33259, with 3 pheasant eggs, and PSM 11902, with 4 pheasant eggs.

Northern Pintail, *Anas acuta*

3 records, all collected clutches:

PSM 11934: 10-egg set, Pierce County, extrapolated first-egg date 14 April 1918 (Julian day 104).

PSM 11935: 6-egg set, Grant County, extrapolated first-egg date 30 April 1932 (Julian day 120). This set is recorded by the collector as a pintail clutch of 3 with 3

parasitic Redhead eggs. No basis for the ID is given and pintails rarely nest close enough to water for their nests to be parasitized by Redheads, so the host ID seems questionable.

PSM 11933: 8-egg set, Grant County, extrapolated first-egg date 7 May 1932 (Julian day 127).

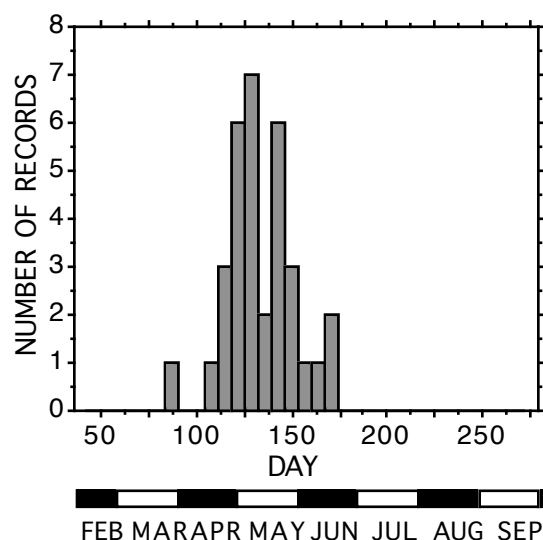
Blue-winged/Cinnamon Teal, *Anas discors/cyanoptera*

We treat these species together because the females are not distinguishable in the field, and they breed sympatrically throughout the state. Future records should validate the presumed identity of the female by noting the identity of her mate.

Records: 33. Burke Museum nest record cards=14; egg sets=19.

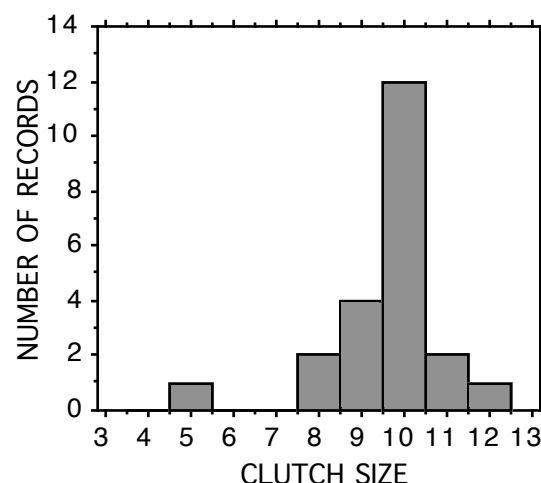
Counties: Adams=3; Douglas=2; Grant=16; King=1; Skagit=2; Spokane=5; Yakima=4.

First-egg dates: Earliest 27 March (Julian day 86); latest 18 June (Julian day 169).

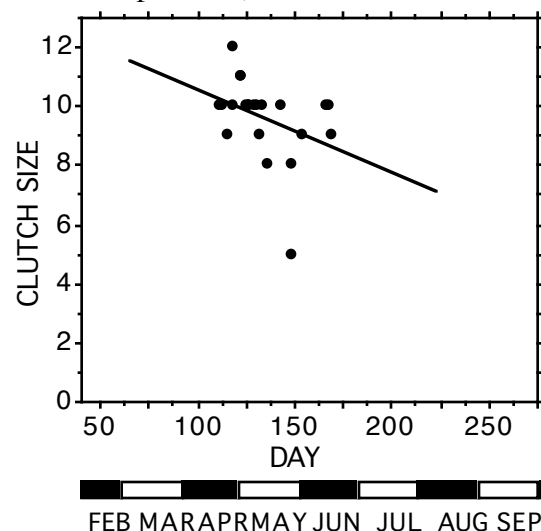


First-egg dates are unimodal, extending over a 12-week season. Nesting starts considerably later at elevations above 2000' (N=5, median 15 June, Julian day 166) than in the lowlands (N=28, median 11 May, Julian day 131; $P < 0.006$).

Clutch size: 22 usable records. Mean 9.6 eggs.



Season and clutch size: Clutch size decreased by 2.4 eggs over the 83-day season of nest initiation. ($Y = 13.4 - 0.03X$; $r^2 = 0.137$; $p = 0.089$).



Northern Shoveler, *Anas clypeata*

3 records:

A Burke Museum card for 13 eggs, extrapolated first-egg date 19 April 1984 (Julian day 109), Grant County.

WFVZ 2539: 10-egg set, extrapolated first-egg date 27 May 1908 (Julian day 147), Douglas County.

WFVZ: 9-egg set, extrapolated first-egg date 28 April 1926 (Julian day 118), Douglas County.

Gadwall, *Anas strepera*

Records: 16. Burke Museum nest record cards=12 (class cards=7); egg sets=4.

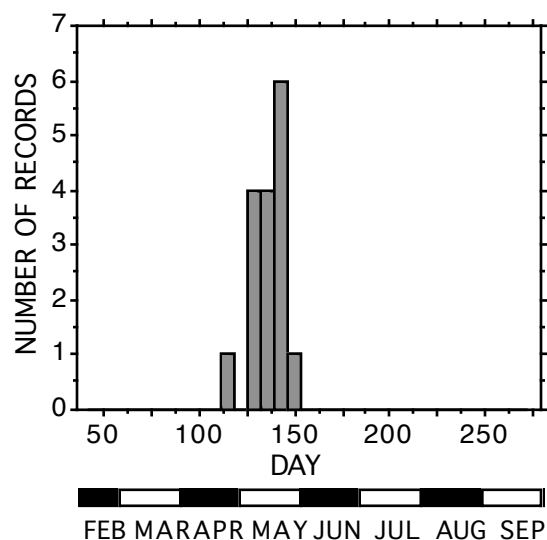
Counties: Douglas=1; Grant=9; King=6.

First-egg dates: Earliest 25 April (Julian day 115); latest 1 June (Julian day 152).

First-egg dates are tightly clustered around the median date of 15 May (Julian day 135), with a 6-week season.

Clutch size: 7 usable records. Mean 9.1 eggs. Distribution: 8 eggs (N=3), 9 eggs (N=1), 10 eggs (N=2), 11 eggs (N=1).

Season and clutch size: Not evaluated because there were just 7 usable records.



American Wigeon, *Anas americana*

Recorded to breed in Washington, but no records in our files.

Canvasback, *Aythya valisineria*

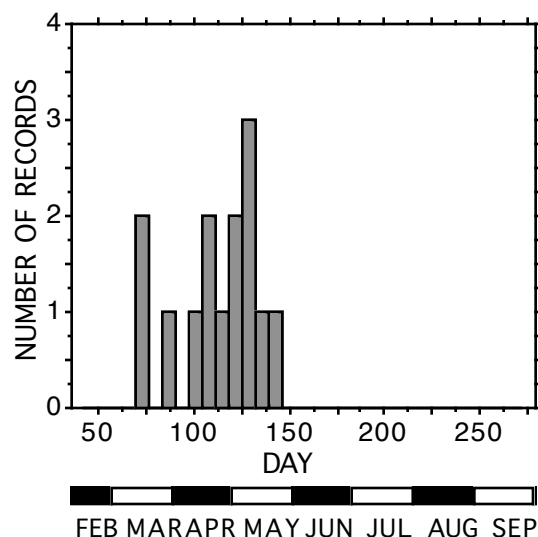
Recorded to breed in Washington, but no records in our files.

Redhead, *Aythya americana*

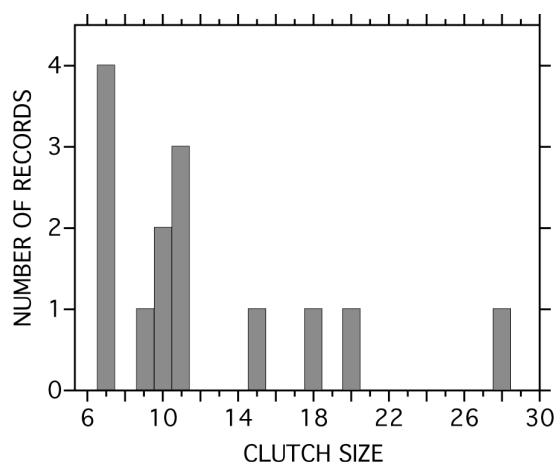
Records: 14. Burke Museum nest record cards=7; egg sets=7.

Counties: Grant=13; Spokane=1.

First-egg dates: Earliest 15 March (Julian day 74); latest 22 May (Julian day 142).



Clutch size: 14 usable records. Mean 12.2 eggs. Distribution 7 to 28 eggs. Redheads are conspecific brood parasites (Rohwer and Freeman 1989), so the clutches of more than 12 eggs were undoubtedly produced by more than one female.



Season and clutch size: Clutch size did not change significantly with season.

Parasitism: One nest contained 3 Ruddy Duck eggs in addition to the Redhead clutch of 10.

Ring-necked Duck, *Aythya collaris*

Recorded to breed in Washington, but no records in our files.

Lesser Scaup, *Aythya affinis*

3 records:

Burke Museum cards:

Spokane County, nest with 8 eggs, extrapolated first-egg date 11 May 1982 (Julian day 131).

Spokane County, nest with 8 eggs, extrapolated first-egg date 12 May 1982 (Julian day 132).

Collected set:

WSU 50-196: 8-egg set, Spokane County, extrapolated first-egg date 15 July 1950 (Julian day 196).

Harlequin Duck, *Histrionicus histrionicus*

3 records:

Burke Museum card:

Snohomish County, nest with 2 eggs,
extrapolated first-egg date 31 May 1981
(Julian day 151).

Collected clutches:

PSM 13050: 7-egg set, Clallam County,
extrapolated first-egg date 26 April 1924
(Julian day 116).

PSM 13051: 6-egg set, Pierce County,
extrapolated first-egg date 19 May 1933
(Julian day 139).

Common Goldeneye, *Bucephala clangula*

1 record: A Burke Museum card for 5 young Common Goldeneyes about a week old on Elbow Lake, Ferry County (K.F. Johnson), extrapolated first-egg date 6 April 1962 (Julian day 96). Because female Common and Barrow's Goldeneyes are often difficult to distinguish in the field, records for these species should mention how the hen was identified.

Barrow's Goldeneye, *Bucephala islandica*

Recorded to breed in Washington, but no records in our files. Female Common and Barrow's Goldeneyes are often difficult to distinguish in the field, so records for these species should mention how the hen was identified.

Bufflehead, *Bucephala albeola*

Recorded to breed in Washington, but no records in our files.

Hooded Merganser, *Lophodytes cucullatus*

Records: 9. Burke Museum nest record cards=9 (class cards=2).

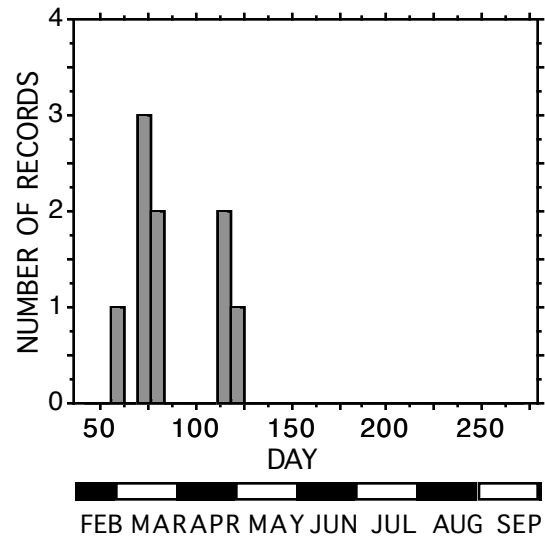
Counties: Pierce=8; Spokane=1.

First-egg dates: Earliest 25 February (Julian day 56); latest 29 April (Julian day 119).

Clutch size: 5 usable records. Mean 10.4 eggs. Distribution: 9 eggs (N=2), 11 eggs (N=3).

Season and clutch size: Not evaluated because there were just 5 usable records.

Parasitism: 4 of 7 nests with Hooded Merganser eggs also contained 1 to 4 Wood Duck eggs.



Common Merganser, *Mergus merganser*

2 records, Burke Museum cards:

Pend Oreille County, 14 young, extrapolated first-egg date about 7 May 1968 (Julian day 127).

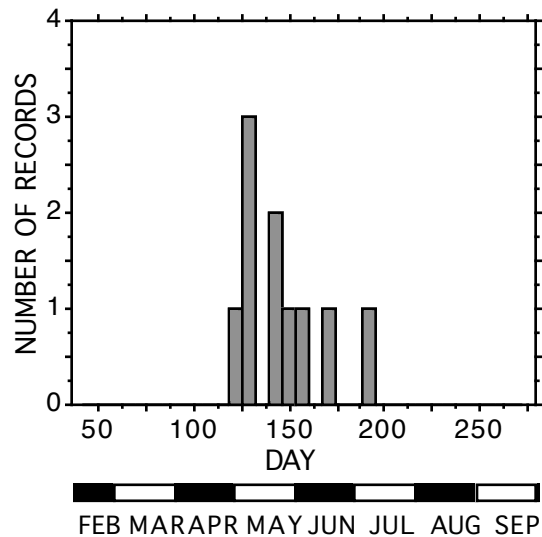
Spokane County, 7 young, extrapolated first-egg date about 25 April 1968 (Julian day 115).

Ruddy Duck, *Oxyura jamaicensis*

Records: 10. Burke Museum nest record cards=6 (class cards=1); egg sets=4.

Counties: Grant=2; King=3; Lincoln=1; Pierce=1; Spokane=3.

First-egg dates: Earliest 3 May (Julian day 123); latest 12 July (Julian day 193).



Clutch size: 6 usable records. Mean 7.5 eggs. Distribution: 6 eggs (N=3), 7 eggs (N=2), 13 eggs (N=1). Ruddy Ducks are known to be conspecific parasites (Rohwer and Freeman 1989), so the 13-egg clutch surely represents laying by more than one female.

Season and clutch size: Not evaluated because there were just 6 usable records.

Parasitism: Ruddy ducks frequently lay parasitically, both in the nests of conspecifics and in the nests of other species that build over-water nests. One nest card from Washington reports that a second ruddy duck visited this nest at least 3 times on different days. One Redhead nest from eastern Washington also contained 3 Ruddy Duck eggs. Another collected set (PSM 13081) contained 7 Ruddy Duck eggs, of which two were judged to be parasitic eggs because they were smaller and less advanced in incubation.

CATHARTIDAE

Turkey Vulture, *Cathartes aura*

1 record: PSM 13093, 2-egg set from Logy Creek, Yakima County, collected 20 April 1943; extrapolated first-egg date 11 April (Julian day 101).

PANDIONIDAE

Osprey, *Pandion haliaetus*

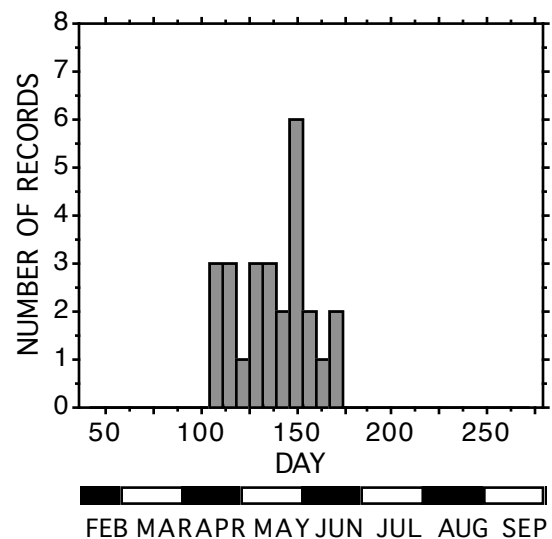
Records: 26. Burke Museum nest record cards=25 (class cards=5); egg sets=1.

Counties: Ferry=2; Grays Harbor=1; Jefferson=1; King=3; Kittitas=1; Okanogan=1; Pend Oreille=6; San Juan=1; Spokane=8; Stevens=1. Location for the egg set (UWBM 3617, from 1880) was "Columbia River".

First-egg dates: Earliest 16 April (Julian day 106); latest 21 June (Julian day 172).

Clutch size: 9 usable records (determined from number of eggs or young). Mean 2.3 eggs or small young. Distribution: 2 eggs or small young (N=6), 3 eggs or small young (N=3).

Season and clutch size: Clutch size did not change significantly with season



ACCIPITRIDAE

White-tailed Kite, *Elanus leucurus*

1 record: Burke Museum card for a nest in Pacific County with 3 eggs, no date specified.

Bald Eagle, *Haliaeetus leucocephalus*

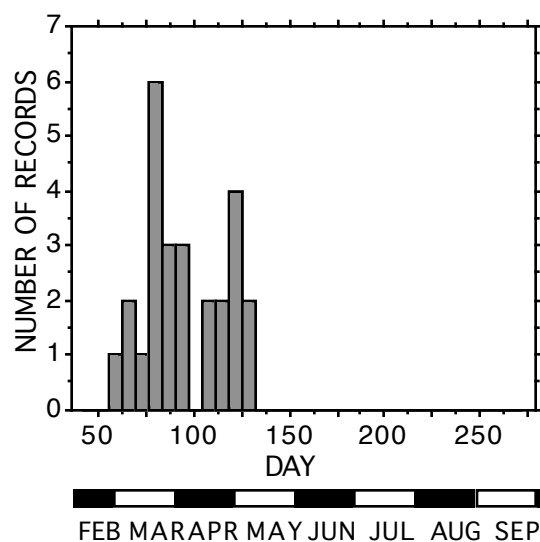
Records: 26. Burke Museum nest record cards=25 (class cards=2); egg sets=1.

Counties: Clallam=2; Grays Harbor=1; Island=2; Lewis=4; Pacific=6; Pierce=3; San Juan=4; Whatcom=4.

First-egg dates: Earliest 1 March (Julian day 60); latest 10 May (Julian day 130). The distribution of first-egg dates covers 11 weeks.

Brood size: 24 counts of young. Mean 1.87 nestlings. Distribution: 1 nestling (N=7), 2 nestlings (N=13), 3 nestlings (N=4).

Season and brood size: No data.



Northern Harrier, *Circus cyaneus*

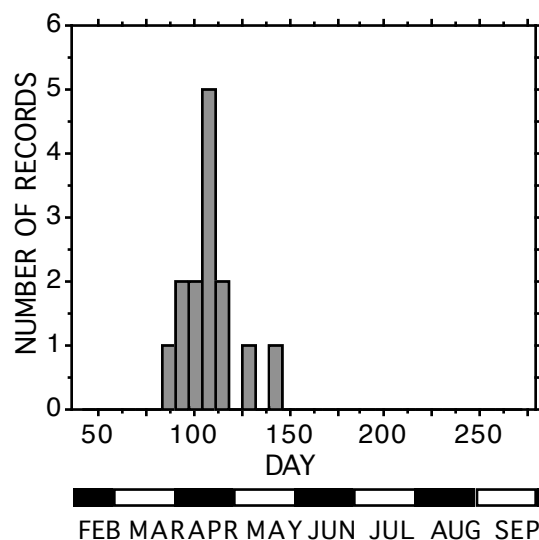
Records: 14. Burke Museum nest record cards=9 (class cards=4); egg sets=4; field notes=1.

Counties: Grant=12; King=1; Whitman=1.

First-egg dates: Earliest 26 March (Julian day 85); latest 24 May (Julian day 144). First-egg dates span 9 weeks.

Clutch size: 11 usable records. Mean 4.7 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=3), 5 eggs (N=1), 6 eggs (N=5).

Season and clutch size: Clutch size did not change significantly with season.



Sharp-shinned Hawk, *Accipiter striatus*

Recorded to breed in Washington, but no records in our files.

Cooper's Hawk, *Accipiter cooperii*

7 records:

Burke Museum card for 2 young from Spokane County, extrapolated first-egg date 24 June 1970.

Collected clutches:

UWBM 27061: 5-egg set, Thurston County, extrapolated first-egg date 29 April 1926 (Julian day 119).

UWBM 3620: 4-egg set, Walla Walla County, extrapolated first-egg date 18 April 1875 (Julian day 108).

PSM 13191: 4-egg set, Pierce County, extrapolated first-egg date 5 May 1933 (Julian day 125).

PSM 13189 4-egg set, Pierce County, extrapolated first-egg date 19 April 1915 (Julian day 109).

PSM 13194: 4-egg set, Yakima County, extrapolated first-egg date 26 April 1940 (Julian day 116).

WVZ: 5-egg set, Whatcom County, extrapolated first-egg date 13 May 1930 (Julian day 133).

Northern Goshawk, *Accipiter gentilis*

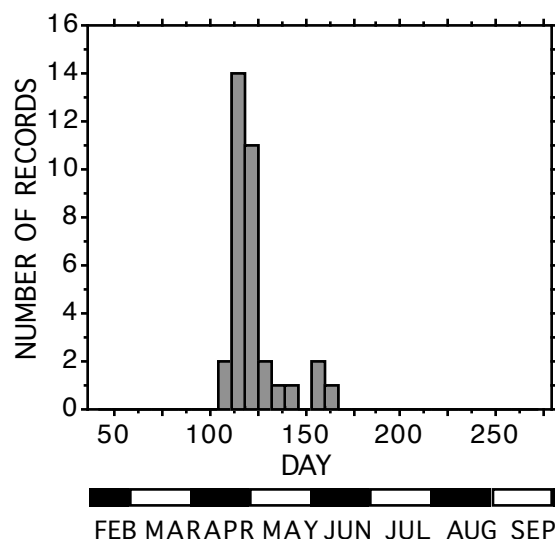
Records: 35. Burke Museum nest record cards=34; egg sets=1.

Counties: Chelan=5; Clallam=5; Columbia=2; Garfield=7; King=1; Okanogan=12; Pend Oreille=1; Skamania=2.

First-egg dates: Earliest 15 April (Julian day 105); latest 13 June (Julian day 164). First-egg dates spanned 59 days.

Clutch size: 1 useable record of 4 eggs. 31 counts of nestlings gave a mean=2.1 young. Distribution: 1 nestling (N=11), 2 nestlings (N=9), 3 nestlings (N=11), 4 nestlings (N=1).

Season and clutch size: No data.



Swainson's Hawk, *Buteo swainsoni*

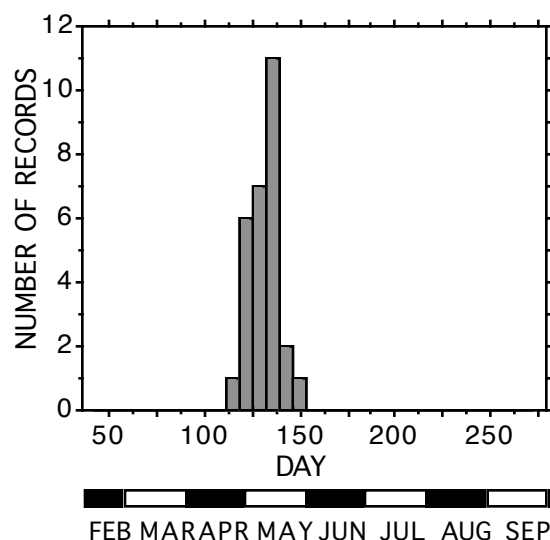
Records: 28. Burke Museum nest record cards=5 (class cards=3); egg sets=20; field notes=3.

Counties: Adams=1; Benton=5; Douglas=1; Franklin=7; Grant=5; Kittitas=3; Whitman=5; Yakima=1.

First-egg dates: Earliest 28 April (Julian day 118); latest 31 May (Julian day 151). First-egg dates span 6 weeks.

Clutch size: 13 usable records. Mean 2.7 eggs. Distribution: 2 eggs (N=5), 3 eggs (N=7), 4 eggs (N=1).

Season and clutch size: No significant change with time was observed



Red-tailed Hawk, *Buteo jamaicensis*

Records: 46. Burke Museum nest record cards=21 (class cards=1); egg sets=22; field notes=3.

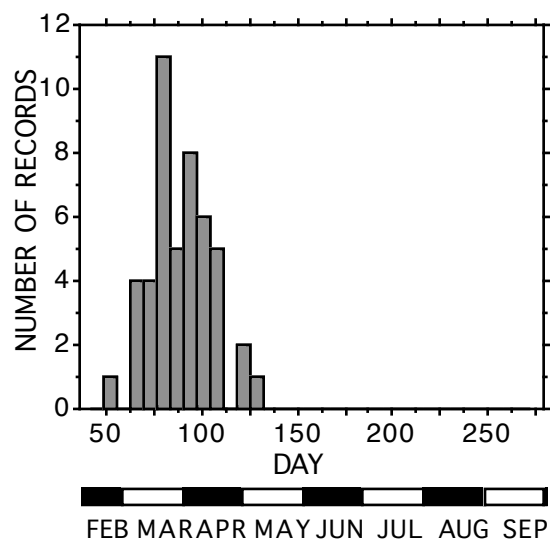
Counties: Adams=1; Benton=8; Chelan=1; Clark=4; Douglas=4; Kittitas=4; Klickitat=2; Lincoln=4; Okanogan=1; Spokane=4; Walla Walla=1; Whitman=4; Yakima=8.

First-egg dates: Earliest 23 February (Julian day 54); latest 9 May (Julian day 129). First-egg dates span 12 weeks.

First-egg dates span 12 weeks.

Clutch size: 24 usable records. Mean 3.4 eggs. Distribution: 2 eggs (N=2), 3 eggs (N=13), 4 eggs (N=7), 5 eggs (N=2).

Season and clutch size: Clutch size did not change significantly with season.

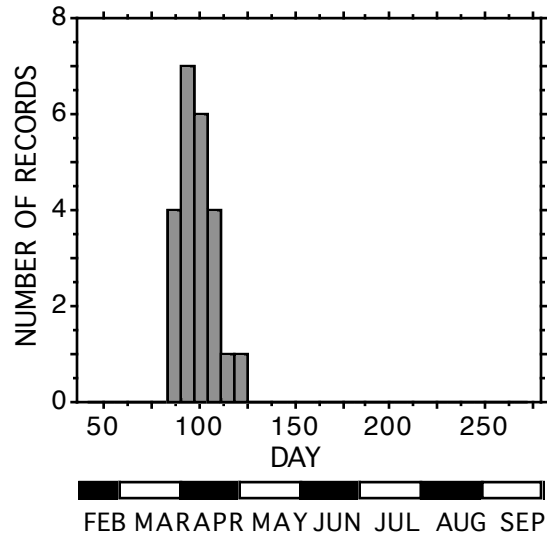


Ferruginous Hawk, *Buteo regalis*

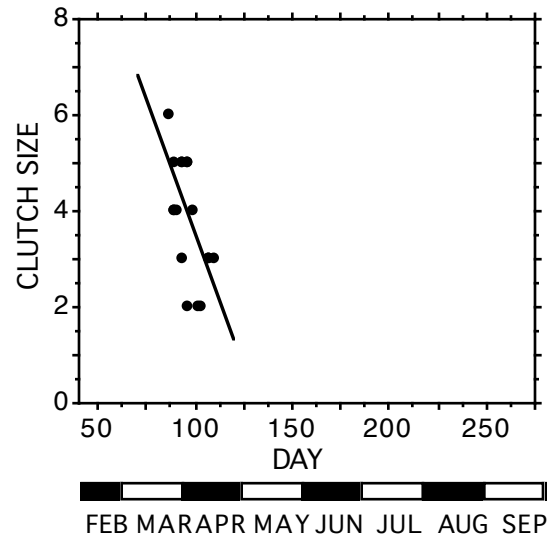
Records: 23. Burke Museum nest record cards=2; egg sets=21.

Counties: Adams=1; Benton=14; Franklin=7; Walla Walla=1.

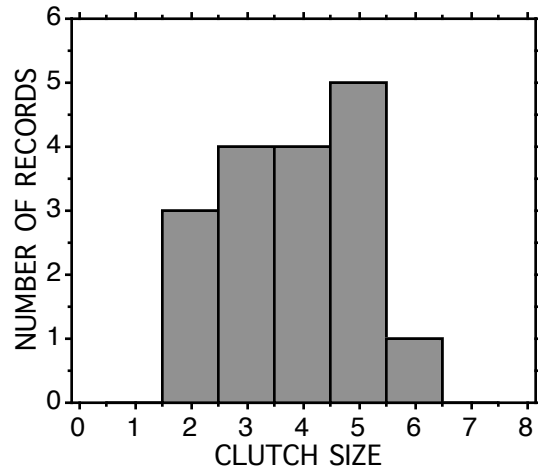
First-egg dates: Earliest 28 March (Julian day 87); latest 30 April (Julian day 120). First-egg dates span 5 weeks.



Season and clutch size: Clutch size declines by 3.8 eggs over the 33-day period of nest initiation ($Y = 14.9 - 0.12X$; $r^2=0.40$; $p=0.0064$). While this is surely an over estimate, the decline in clutch size with season is extreme.



Clutch size: 17 usable records. Mean 3.8 eggs.



Golden Eagle, *Aquila chrysaetos*

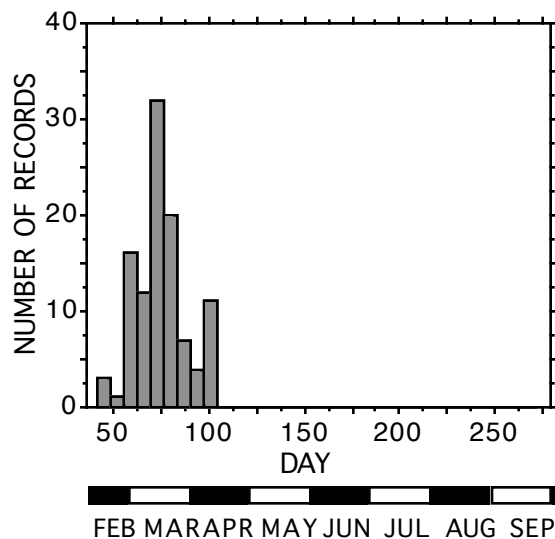
Records: 150. Burke Museum nest record cards=150.

Counties: Asotin=1; Chelan=4; Douglas=18; Ferry=1; Grant=3; Okanogan=122; Yakima=1.

First-egg dates: 106 usable records, of which 104 were obtained by extrapolations from aged young. Earliest, 13 February (Julian day 44); latest, 12 April (Julian day 102). 75% of layings were initiated during March. Most of these records were provided by N. Vern Marr.

Clutch size: No usable records. Most nests (N=145) were checked when they contained young. Of these 101 had a single chick and 44 had two chicks. One contained 1 egg.

Season and brood size: No data



FALCONIDAE

American Kestrel, *Falco sparverius*

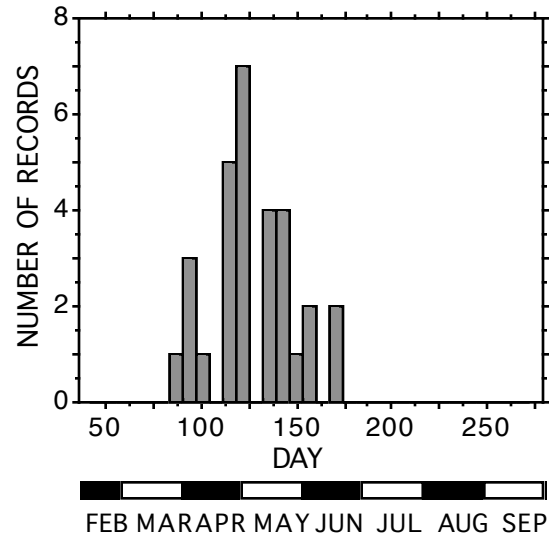
Records: 30. Burke Museum nest record cards=8 (class cards=1); egg sets=19; field notes=3.

Counties: Asotin=1; Benton=3; Clallam=1; Douglas=1; Grant=1; King=2; Kittitas=5; Lincoln=1; Spokane=3; Whitman=4; Yakima=8.

First-egg dates: Earliest 26 March (Julian day 85); latest 20 June (Julian day 171). First-egg dates span 13 weeks.

Clutch size: 20 usable records. Mean 4.5 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=6), 5 eggs (N=12).

Season and clutch size: Clutch size did not change significantly with season.



Merlin, *Falco columbarius*

Recorded to breed in Washington, but no records in our files.

Peregrine Falcon, *Falco peregrinus*

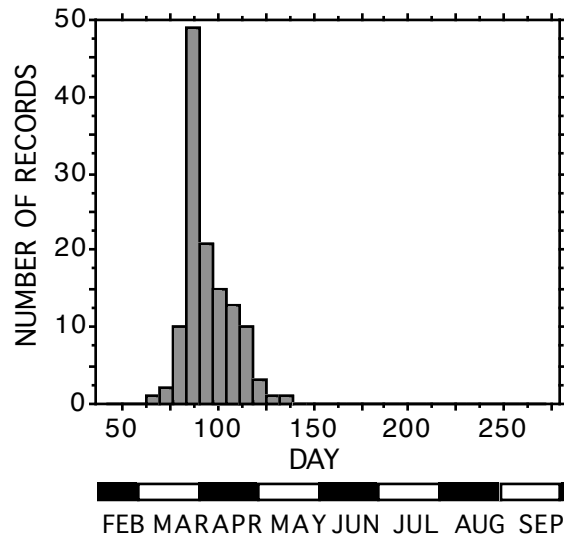
Recorded to breed in Washington, but no records in our files.

Prairie Falcon, *Falco mexicanus*

Records: 126. Burke Museum nest record cards=32; egg sets=94.

Counties: Adams=5; Asotin=10; Benton=70; Franklin=13; Grant=3; Kittitas=4; Klickitat=1; Walla Walla=2; Yakima=18.

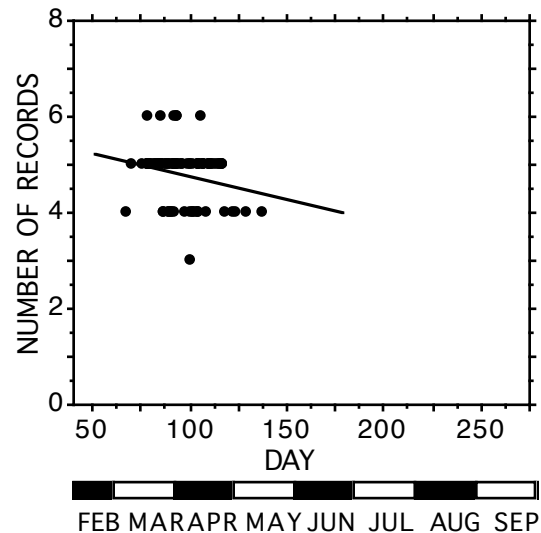
First-egg dates: Earliest 9 March (Julian day 68); latest 18 May (Julian day 138).



The right skew in first-egg dates, following the peak in late March may represent renestings after failures.

Clutch size: 88 usable records. Mean 4.81 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=21), 5 eggs (N=60), 6 eggs (N=6).

Season and clutch size: Clutch size decreased by 0.67 eggs over the 70-day season of nest initiation ($Y = 5.74 - 0.01X$; $r^2=0.055$; $P=0.029$).



Parasitism: One record (WFVZ 10618) shows a fresh Red-tailed Hawk egg in a clutch of slightly incubated Prairie Falcon eggs. It is unclear if the red-tail had taken over the falcon nest or if it was laying parasitically.

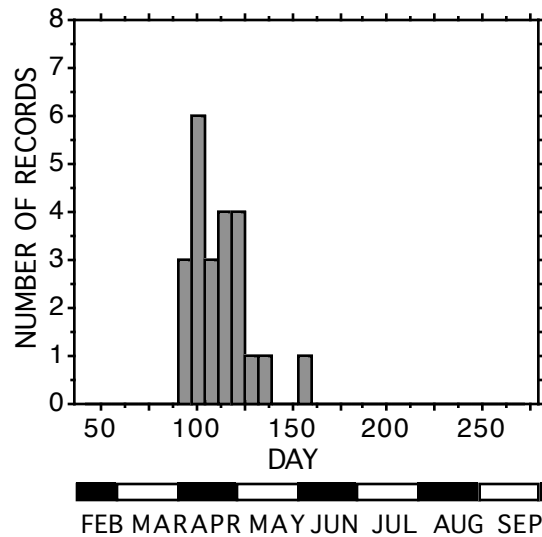
PHASIANIDAE

Chukar, *Alectoris chukar*

Records: 23. Burke Museum nest record cards=23.

Counties: Whitman=23.

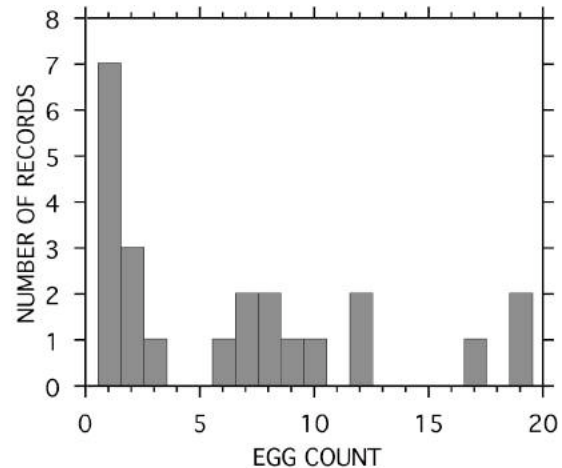
First-egg dates: Earliest 5 April (Julian day 95); latest 8 June (Julian day 159).



Clutch size: These 23 nests were checked more than once as part of a study, but only three survived for two checks. The clutch sizes in these three nests were 7, 12, and 19 eggs. The 7-egg nest was checked twice during laying, but the number of eggs laid was less than the number of days between checks; thus, the clutch was complete if Chukars lay one egg a day.

The graph below summarizes the maximum number of eggs found in these nests. Because all but three of these nests failed between their first and second checks this graph includes many incomplete clutches. Thus, it is not comparable to the other clutch size graphs in these accounts. We present it

to show that some Chukar clutches are very large.



Chukars are known to be conspecific parasites (Rohwer and Freeman 1989), so the clutches of 17 and 19 eggs were likely produced by more than one female. Indeed, two of the 23 cards present evidence of conspecific parasitism: One card for a nest with 7 eggs reported 4 eggs appearing in the nest over a two day period. The other card for a clutch of 19 eggs stated that the eggs were collected and incubated in the lab; 2 young hatched 5 days after the earlier young hatched, suggesting that these 2 eggs had been added to the clutch after the host female had quit laying.

Season and clutch size: Not evaluated because there were just 3 usable records.

Parasitism: One nest containing 19 Chukar eggs also contained 2 Ring-necked Pheasant eggs.

Gray Partridge, *Perdix perdix*

Records: 9. Burke Museum nest record cards=3; egg sets=4; field notes=2.

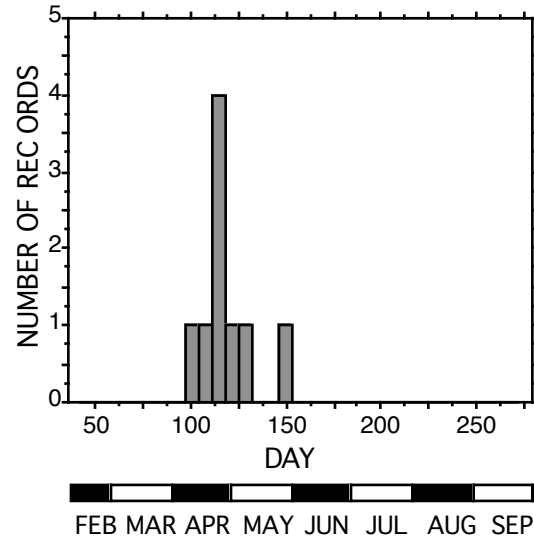
Counties: Benton=1; Pierce=1; Spokane= 2; Whitman=1; Yakima=4.

First-egg dates: Earliest 9 April (Julian day 99); latest 31 May (Julian day 151). First-egg dates span 8 weeks.

Clutch size: 7 usable records. Mean 15.0 eggs. Distribution: 11 eggs (N=1), 14 eggs (N=2), 15 eggs (N=1), 17 eggs (N=3).

Season and clutch size: Not evaluated because there were just 7 usable records.

Parasitism: One nest with 18 partridge eggs also contained 3 pheasant eggs.

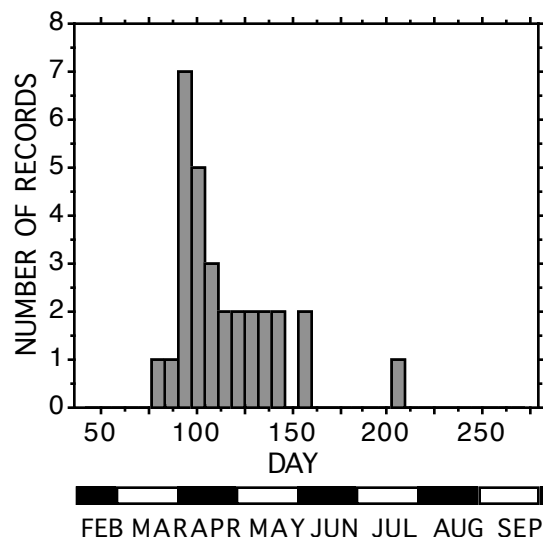


Ring-necked Pheasant, *Phasianus colchicus*

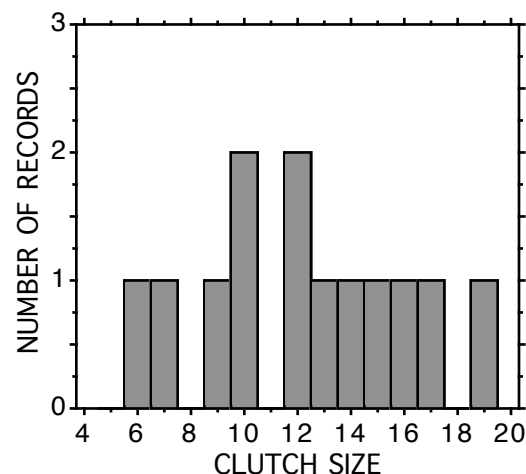
Records: 30. Burke Museum nest record cards=12 (class cards=2); egg sets=16; field notes=2.

Counties: Benton=1; Columbia=1; Grant=4; Jefferson=1; King=4; Pierce=4; Spokane=5; Walla Walla=1; Whitman=4; Yakima=5.

First-egg dates: Earliest 22 March (Julian day 81); latest 27 July (Julian day 208). The right skew following the early April peak in first-egg dates likely represents renestings after failures.



Clutch size: 13 usable records. Mean 12.3 eggs.



Ring-necked Pheasants are sometimes conspecific brood parasites (Rohwer and Freeman 1989), so some of the large clutches may represent laying by more than one female.

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Perhaps because Ring-necked Pheasants are occasional conspecific parasites they sometimes lay in the nests of other species. Two collected clutches of Mallard eggs and one of Gray Partridge eggs also contained Ring-neck Pheasant eggs. Additionally, a card for a Chukar nest notes that it contained 2 pheasant eggs, and a card for a California Quail nest notes that it contained 3 pheasant eggs.

Spruce Grouse, *Dendragapus canadensis*

1 record: A Burke Museum card for 3 young observed 21 July 1972 at Castle Pass, Okanogan County, extrapolated first-egg date 22 June (Julian day 173).

Blue Grouse, *Dendragapus obscurus*

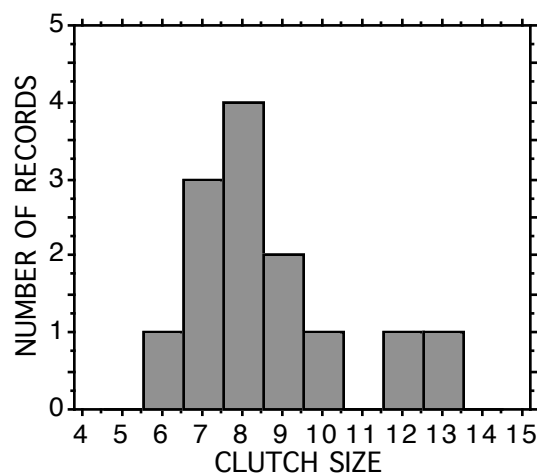
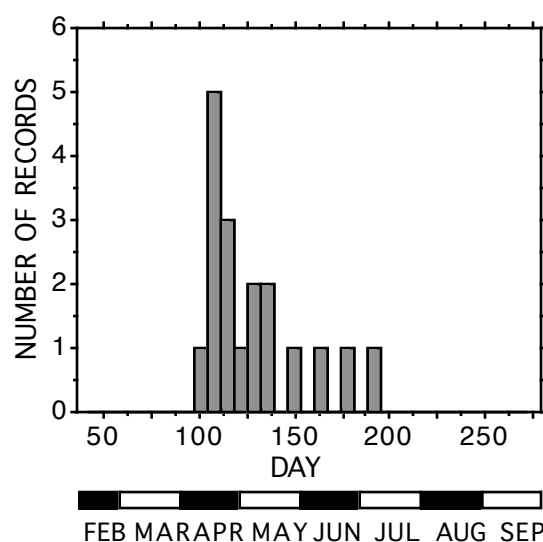
Records: 18. Burke Museum nest record cards=4; egg sets=13; field notes=1.

Counties: Chelan=1; Clallam=2; Columbia=1; King=1; Pierce=9; Walla Walla=1; Yakima=3.

First-egg dates: Earliest 14 April (Julian day 104); latest 10 July (Julian day 191). The strong initial peak and the 12-week laying season suggest some females may raise two broods.

Clutch size: 13 usable records. Mean 8.6 eggs.

Season and clutch size: Clutch size did not change significantly with season.



White-tailed Ptarmigan, *Lagopus leucurus*

6 records:

Collected clutches:

PSM 13547: 5-egg set, Pierce County, extrapolated first-egg date 25 June 1919 (Julian day 176).

PSM 13546: 6-egg set, Pierce County, extrapolated first-egg date 1 July 1910 (Julian day 182).

PSM 13543: 6-egg set, Pierce County, extrapolated first-egg date 26 June 1935 (Julian day 173).

PSM 13544: 7-egg set, Pierce County, extrapolated first-egg date 22 June 1935 (Julian day 173).

Field notes:

Whatcom County, nest with 5 eggs, extrapolated first-egg date 20 June 1934 (Julian day 171).

Whatcom County, 5 young, extrapolated first-egg date 17 June 1929 (Julian day 168).

Ruffed Grouse, *Bonasa umbellus*

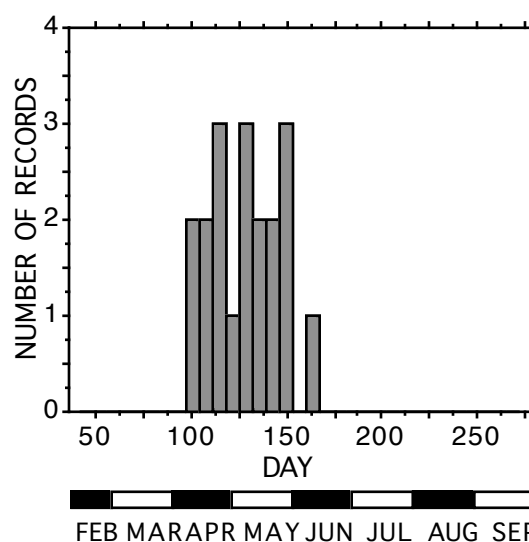
Records: 19. Burke Museum nest record cards=11; egg sets=8.

Counties: Ferry=2; Grays Harbor=1; King=4; Okanogan=2; Pierce=2; Spokane=7; Walla Walla=1.

First-egg dates: Earliest 11 April (Julian day 101); latest 13 June (Julian day 164). First-egg dates span 10 weeks.

Clutch size: 7 usable records. Mean 8.7 eggs. Distribution: 7 eggs (N=1), 8 eggs (N=2), 9 eggs (N=2), 10 eggs (N=2).

Season and clutch size: Not evaluated because there were just 7 usable records.

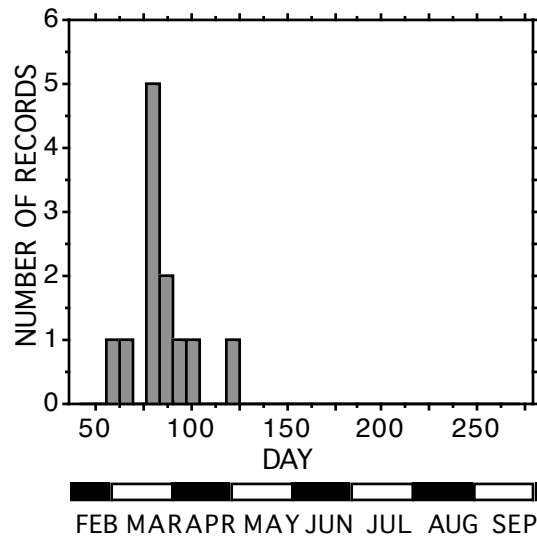


Sage Grouse, *Centrocercus urophasianus*

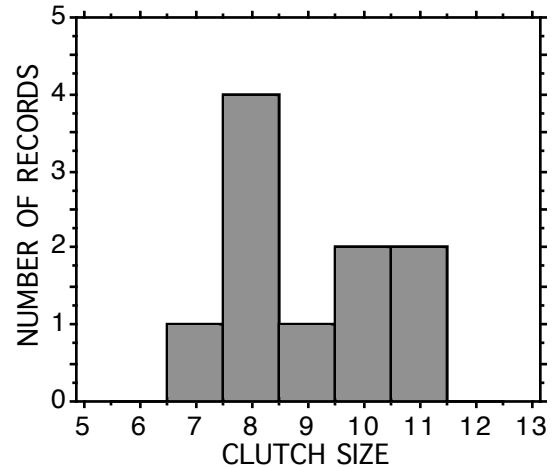
Records: 12. Burke Museum nest record cards=2; egg sets=10.

Counties: Benton=2; Douglas=1; Kittitas=2; Yakima=7.

First-egg dates: Earliest 27 February (Julian day 58); latest 29 April (Julian day 119). First-egg dates span 9 weeks, with median date of 23 March (Julian day 82).



Clutch size: 10 usable records. Mean 9.0 eggs.



Season and clutch size: No significant change in clutch size with season was observed.

Sharp-tailed Grouse, *Tympanuchus phasianellus*

6 records:

Burke Museum card:

Grant County, brood with adult, no indication of age of young, 19 June 1975.

Collected clutches:

UWBM 3676: 10-egg set, Yakima County, extrapolated first-egg date 24 April 1887 (Julian day 114).

PSM 1357: 9-egg set, Columbia County, extrapolated first-egg date 30 April 1897 (Julian day 120).

WFVZ 99133: 15-egg set, Columbia County, extrapolated first-egg date 27 April 1897 (Julian day 117).

WFVZ 117888: 8-egg set, Columbia County, extrapolated first-egg date 10 April 1898 (Julian day 100).

WFVZ 3708 10-egg set, Columbia County, extrapolated first-egg date 8 May 1897 (Julian day 128).

Wild Turkey, *Meleagris gallopavo*

1 record: A Burke Museum card for a nest with 15 eggs near Goldendale, Klickitat County, 2 May 1977; extrapolated first-egg date 17 April (Julian day 107).

ODONTOPHORIDAE

Mountain Quail, *Oreortyx pictus*

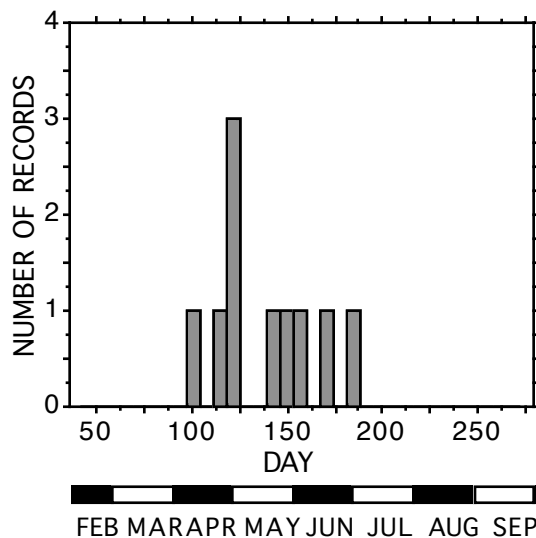
1 record: Currier's field notes record a clutch of 12 eggs at Chambers Creek, Pierce County, 24 June 1904; extrapolated first-egg date 19 May (Julian day 139).

Northern Bobwhite, *Colinus virginianus*

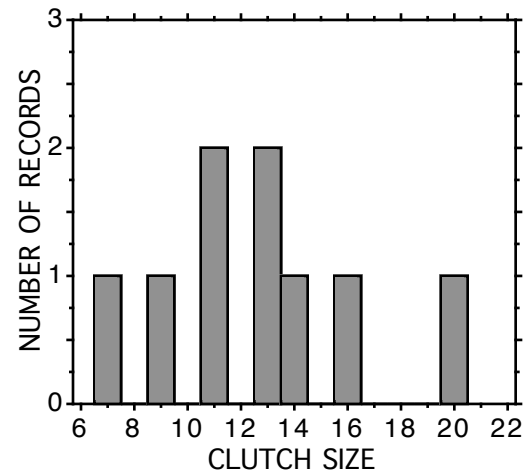
Records: 10. Burke Museum nest record cards=1; egg sets=9.

Counties: Benton=1; Island=1; King= 1; Pierce=2; Yakima=5.

First-egg dates: Earliest 10 April (Julian day 100); latest 7 July (Julian day 188). The 13-week period of nest initiation suggests that pairs are raising two or more broods.

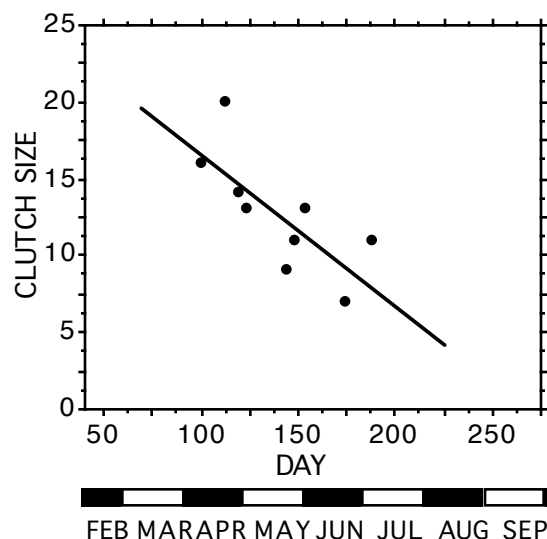


Clutch size: 9 usable records. Mean 12.6 eggs.



Northern Bobwhites are sometimes conspecific brood parasites (Rohwer and Freeman 1989), so the clutches of 16 and 20 eggs likely represent layings by more than one female.

Season and clutch size: If the 16- and 20-egg clutches are excluded under the assumption that they were parasitized, the decline in clutch size with season is not significant. Including either or both of these clutches creates a significant decline in clutch size with season.

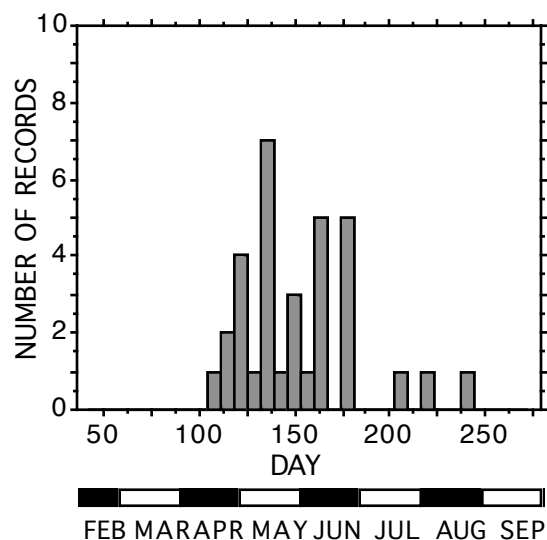


California Quail, *Callipepla californica*

Records: 33. Burke Museum nest record cards=25; egg sets=7; field notes=1.

Counties: Benton=1; King=15; Okanogan=1; Pierce=3; Spokane=13.

First-egg dates: Earliest 17 April (Julian day 107); latest 1 September (Julian day 244).



The nearly 5-month laying season indicates that pairs raise multiple broods.

Clutch size: 6 usable records. Mean 14.3 eggs. Distribution: 11 eggs (N=2), 13 eggs (N=2), 18 eggs (N=1), 20 eggs (N=1).

California Quail are known to be conspecific brood parasites (Rohwer and Freeman 1989), so the clutches of 18 and 20 eggs were likely produced by more than one female.

Season and clutch size: Not evaluated because there were just 6 usable records.

Parasitism: A nest with 13 California Quail eggs in Spokane County (Burke card 639) also contained 3 Ring-necked Pheasant eggs.

Perhaps because they are conspecific parasites, California Quail occasionally lay in the nests of other species. A collected clutch of White-crowned Sparrow eggs contained 2 California Quail eggs, and a collected clutch of Western Meadowlark eggs contained a single California Quail egg.

GRUIDAE

Sandhill Crane, *Grus canadensis*

3 records, all collected clutches:

PSM 13676: 2-egg set, Yakima County, extrapolated first-egg date 25 May 1941 (Julian day 145).

PSM 13677: 2-egg set, Yakima County, extrapolated first-egg date 25 May 1944 (Julian day 145).

WSU 48-33: 2-egg set, Stevens County, extrapolated first-egg date 1 May 1893 (Julian day 121).

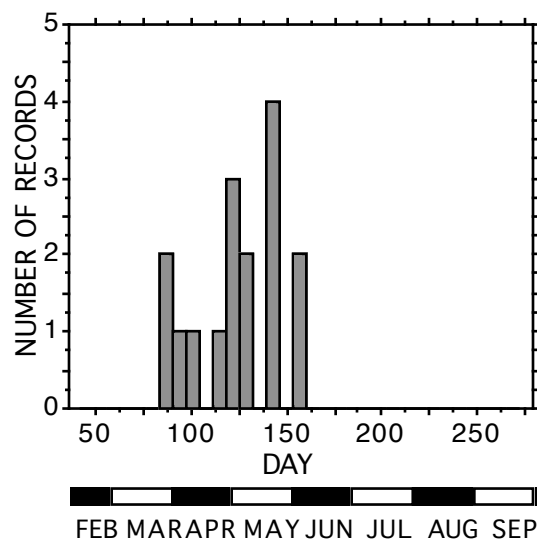
RALLIDAE

Virginia Rail, *Rallus limicola*

Records: 16. Burke Museum nest record cards=4 (class cards=2); egg sets=10; field notes=2.

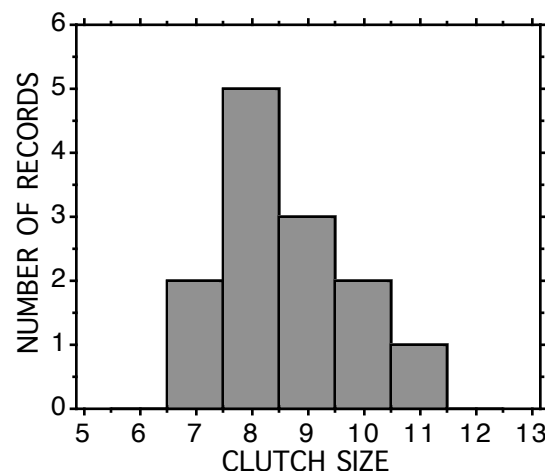
Counties: King=4; Pierce=6; Snohomish=1; Spokane=1; Walla Walla=1; Yakima=3.

First-egg dates: Earliest 30 March (Julian day 89); latest 4 June (Julian day 155).



The 11-week period of nest initiation suggests that pairs raise more than one brood.

Clutch size: 13 usable records. Mean 8.6 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Sora, *Porzana carolina*

6 records:

Burke Museum cards:

Whatcom County, brood of 6 young,
extrapolated first-egg date 18 May 1964
(Julian day 138).

Spokane County, clutch of 11 eggs,
extrapolated first-egg date 19 May 1982
(Julian day 139).

Collected clutches:

UWBM 27028: 13-egg set, Yakima
County, extrapolated first-egg date 31
May 1921 (Julian day 151).

PSM 13649: 9-egg set, Yakima County,
extrapolated first-egg date 25 May 1946
(Julian day 145).

PSM 13650: 7-egg set, Pierce County,
extrapolated first-egg date 6 June 1914
(Julian day 157).

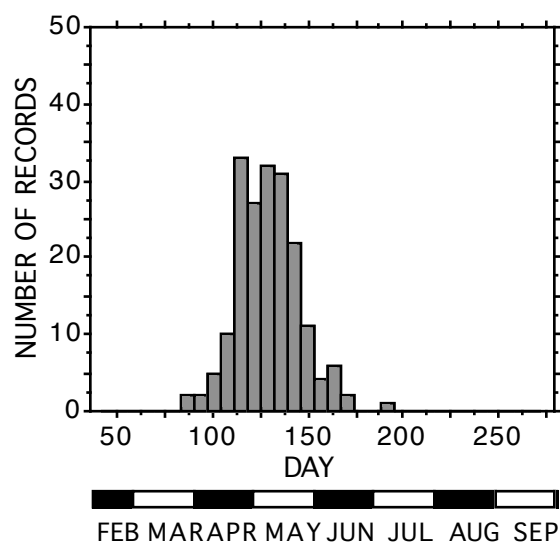
WFVZ: 6-egg set, Skagit County,
extrapolated first-egg date 10 May 1927
(Julian day 130).

American Coot, *Fulica americana*

Records: 188. Burke Museum nest record
cards=173 (class cards=47); egg sets=15.

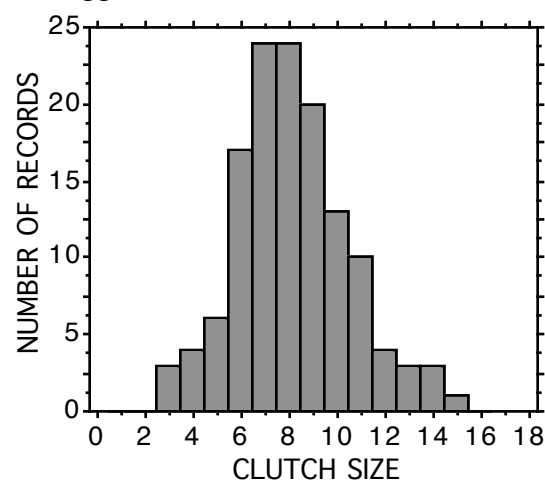
Counties: Douglas=1; Grant=41; King=49;
Lincoln=1; Okanogan=2; Pierce=5;
Spokane=87; Yakima=2.

First-egg dates: N=140. Earliest 30 March
(Julian day 89); latest 8 July (Julian day
189).



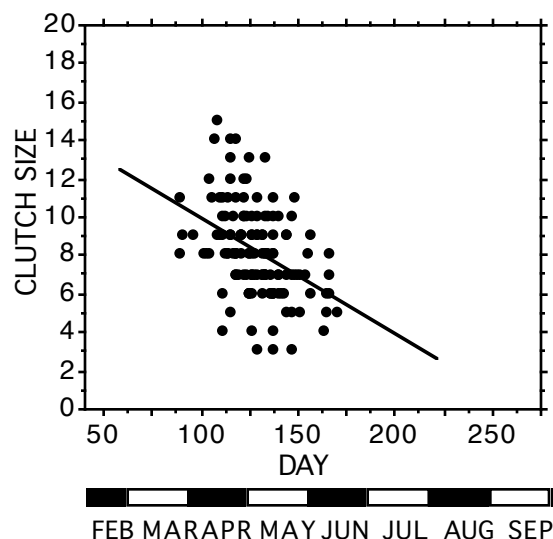
The symmetrical distribution of first-egg
dates, together with 77% of clutches being
initiated in the middle 5-weeks of the
season, suggests that second broods are rare.
First-egg dates did not vary significantly
with elevation and region.

Clutch size: 132 usable records. Mean
8.21 eggs.



Coots are conspecific parasites, so clutches
larger than 9 eggs were likely produced by
more than one female.

Season and clutch size: Clutch size decreases by 4.9 eggs over the 80-day season of nest initiation ($Y = 16.04 - 0.06X$; $r^2=0.179$; $p=0.0001$).



CHARADRIIDAE

Killdeer, *Charadrius vociferus*

Records: 124. Burke Museum nest record cards=97 (class cards=33); egg sets=27.

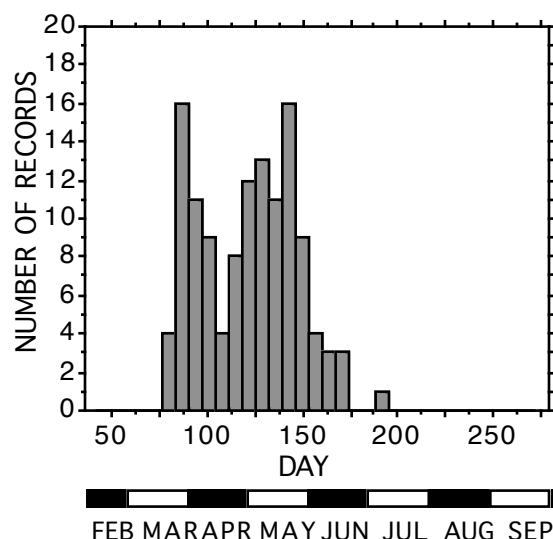
Counties: Benton=7; Clallam=13; Ferry=2; Garfield=1; Grant=26; Grays Harbor=4; Island=2; King=29; Klickitat=3; Lincoln=1; Pacific=2; Pierce=11; Skagit=3; Spokane=6; Thurston=1; Whatcom=6; Whitman=2; Yakima=5.

First-egg dates: Earliest 19 March (Julian day 78); latest 9 July (Julian day 190). Laying begins abruptly in late March, and shows a distinct double peak suggesting synchronous arrival and first nesting (median for first peak 1 April; Julian day 91). The peak for second nestings is broader with a median of 16 May (Julian day 136).

Clutch size: 89 usable records. Mean 3.8 eggs. Distribution: 1 egg (N=1), 2 eggs (N=3), 3 eggs (N=6), 4 eggs (N=79).

Season and clutch size: Clutches of 4 eggs were earlier (mean Julian day 120) than

clutches of 2 or 3 eggs (mean Julian day 130), but the regression was not significant ($P=0.19$). We eliminated the 1-egg clutch (Julian day 132) because it likely represents partial loss of a larger clutch.



Snowy Plover, *Charadrius alexandrinus*

1 record: A Burke Museum card for 3 eggs at Ocean Shores, Grays Harbor County, extrapolated first-egg date 20 June 1979 (Julian day 171).

Semipalmated Plover, *Charadrius semipalmatus*

Recorded to breed in Washington, but no records in our files.

HAEMATOPODIDAE

Black Oystercatcher, *Haematopus bachmani*

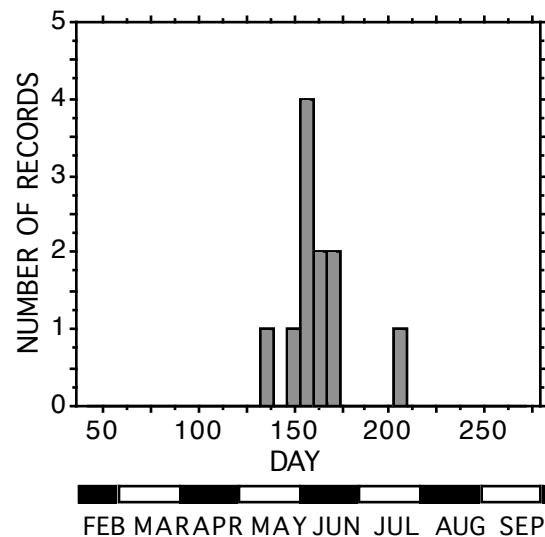
Records: 11. UW nest record cards=7 (class cards=2); egg sets=4.

Counties: Clallam=7; Jefferson=1; San Juan= 3.

First-egg dates: Earliest 18 May (Julian day 138); latest 22 July (Julian day 203). First-egg dates span 6 weeks, not counting the very late record for 22 July, which was reported as a possible third nesting attempt.

Clutch size: 2 usable records, both 3-egg clutches.

Season and clutch size: Not evaluated because there were just 2 usable records.



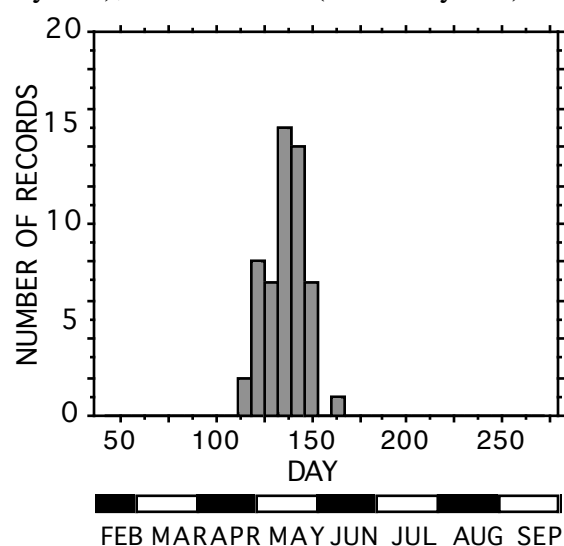
RECURVIROSTRIDAE

American Avocet, *Recurvirostra americana*

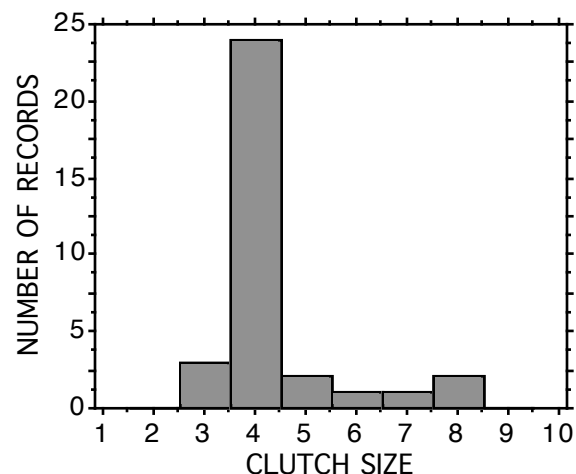
Records: 54. Burke Museum nest record cards=38 (class cards=7); egg sets=16.

Counties: Adams=1; Douglas=1; Grant=50; Yakima=2.

First-egg dates: Earliest 22 April (Julian day 112); latest 11 June (Julian day 162).



Clutch size: 33 usable records. Mean 4.4 eggs.



The maximum clutch size for shorebirds is almost always 4 eggs, with 5 egg clutches laid by the same female being very rare. Thus, the six clutches of 5–8 eggs likely represent laying by two females. Female-female pairs sometimes form when there is a shortage of males.

Season and clutch size: There was no significant change in clutch size through the season. However, clutches larger than 5 eggs tend to occur later in the season ($p=0.13$).

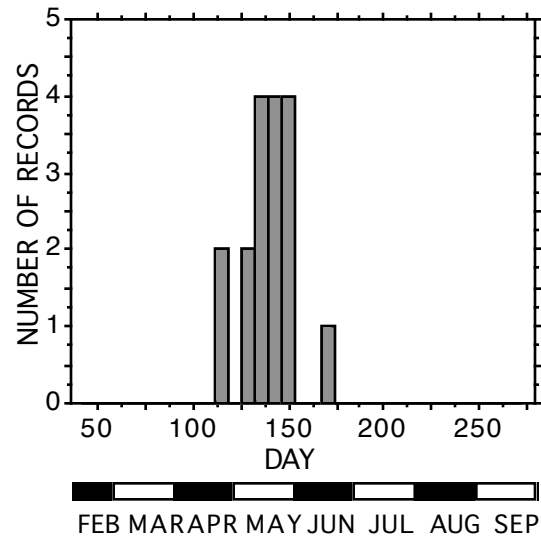
Black-necked Stilt, *Himantopus mexicanus*

Records: 17. Burke Museum nest record cards=13; egg sets=4.

Counties: Grant=17.

First-egg dates: Earliest 23 April (Julian day 113); latest 20 June (Julian day 171). The median first-egg date was 20 May (Julian day 140).

Clutch size: 8 usable records. Mean 4.6 eggs. Distribution: 2 eggs (N=1), 4 eggs (N=5), 7 eggs (N=1), 8 eggs (N=1). The maximum clutch size for shorebirds is almost always 4 eggs, with 5-egg clutches laid by the same female being very rare. Thus, the clutches of 7 and 8 eggs surely represent laying by two females. Female-female pairs sometimes form when there is a shortage of males.



Season and clutch size: Clutch size did not change significantly with season.

SCOLOPACIDAE

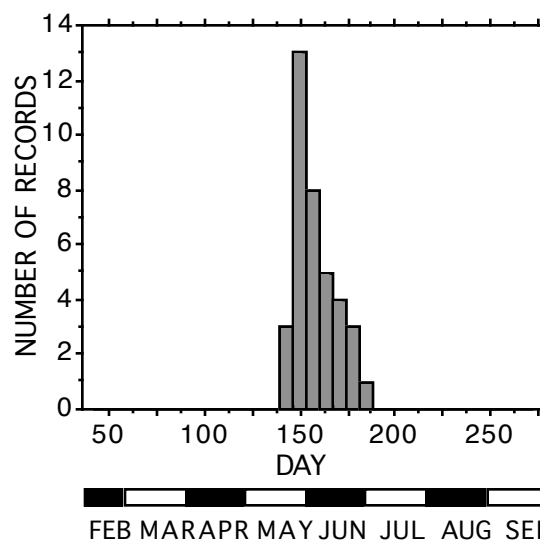
Spotted Sandpiper, *Actitis macularia*

Records: 37. UW nest record cards=20; egg sets=17.

Counties: Benton=1; Chelan=16; King=4; Kittitas=1; Pend Oreille=3; Pierce=4; Skamania=3; Walla Walla=1; Whitman=1; Yakima=3.

First-egg dates: Earliest 23 May (Julian day 143); latest 7 July (Julian day 188). The right skew of first-egg dates suggests renesting after failures, but the short, 44-day span of clutch initiation is too short to suggest second broods.

Clutch size: 30 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=2) 4 eggs (N=28).



Season and clutch size: Nearly all clutches contained 4 eggs, so there was no significant change with season

Upland Sandpiper, *Bartramia longicauda*

1 record: A Burke Museum card for 4 eggs from East Spokane Valley, Spokane County, extrapolated first-egg date 9 June 1976 (Julian day 160).

Long-billed Curlew, *Numenius americanus*

5 records:

Burke Museum cards:

Grant County, nest with 4 eggs, extrapolated first-egg date 2 May 1985 (Julian day 122).

Grant County, nest with 4 eggs, extrapolated first-egg date 2 May 1985 (Julian day 122).

Kittitas County, nest with 4 eggs, extrapolated first-egg date 21 April 1985 (Julian day 111).

2 collected clutches:

PSM 13916: 4-egg set, Benton County, extrapolated first-egg date 13 April 1947 (Julian day 103).

PSM 13917: 4-egg set, Benton County, extrapolated first-egg date 13 April 1947 (Julian day 103).

Common Snipe, *Gallinago gallinago*

7 records:

Burke Museum cards:

Grant County, nest with 4 eggs,
extrapolated first-egg date 15 June 1984
(Julian day 166).

Spokane County, nest with 4 eggs,
extrapolated first-egg date 10 June 1956
(Julian day 161).

Collected clutches:

PSM 14036: 4-egg set, Pierce County,
extrapolated first-egg date 6 June 1920
(Julian day 157).

PSM 14038: 4-egg set, Yakima County,
extrapolated first-egg date 30 April
1936 (Julian day 120).

PSM 14042: 4-egg set, Yakima County,
extrapolated first-egg date 12 May 1935
(Julian day 132).

PSM 14039: 4-egg set, Yakima County,
extrapolated first-egg date 27 April 1936
(Julian day 117).

PSM 14041: 4-egg set, Yakima County,
extrapolated first-egg date 29 May 1937
(Julian day 149).

Wilson's Phalarope, *Phalaropus tricolor*

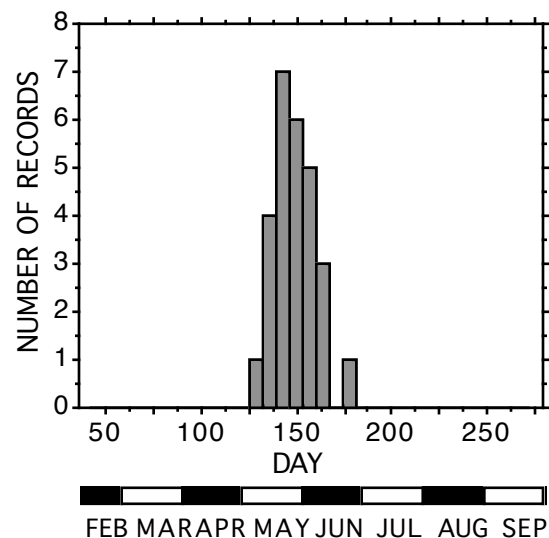
Records: 27. Burke Museum nest record
cards=12 (class cards=2); egg sets=15.

Counties: Grant=18; Lincoln=2; Pierce=1;
Yakima=6.

First-egg dates: Earliest 11 May (Julian
day 131); latest 29 June (Julian day 180).
First-egg dates cover a short 5-week season,
except for a single record on 29 June (Julian
day 180).

Clutch size: 18 usable records. Mean 4.0
eggs. Distribution: 4 eggs (N=18).

Season and clutch size: Not relevant; all
clutches had 4 eggs.



LARIDAE

Ring-billed Gull, *Larus delawarensis*

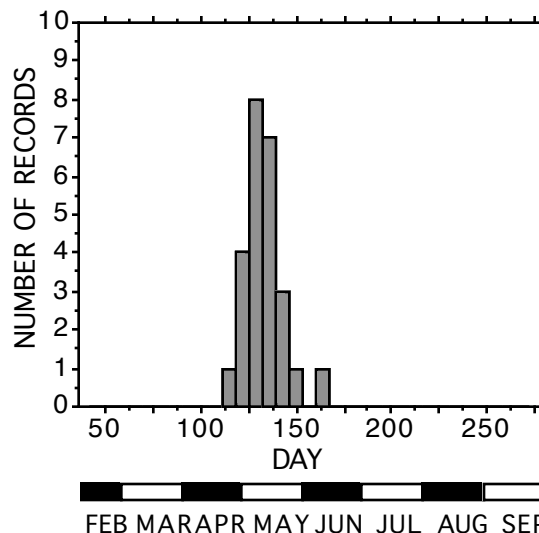
(Also see the account of mixed colonies below.)

Records: 25. Burke Museum nest record cards=6 (class cards=2); egg sets=19.

Colony records: 5 data slips associated with egg sets report the size of the colony from which the eggs were collected. In addition, there are 16 colony cards that estimate numbers of nests or pairs and, sometimes, that report a distribution of clutch sizes.

Counties: Adams=1; Benton=5; Franklin=1; Grant=14; Grays Harbor=3; Pacific=1.

First-egg dates: Earliest 23 April (Julian day 113); latest 13 June (Julian day 164). The 4 records for western Washington are late (median date 25 May, Julian day 145), compared to those from eastern Washington (median 10 May, Julian day 130).



Clutch size: 21 usable records. Mean 3.0 eggs. Distribution: 2 eggs (N=5), 3 eggs (N=13), 4 eggs (N=1), 5 eggs (N=2). Clutches of 4-6 eggs are quite unusual and tend to be taken disproportionately by egg collectors; in some of these clutches the eggs can clearly be seen to have been laid by two different females.

Season and clutch size: Clutch size did not change significantly with season.

California Gull, *Larus californicus*
(Also see the account of mixed colonies below.)

12 records, all collected clutches
representing nests from 5 colonies:

4 collected sets from 2 colonies (no colony
notes):

UWBM 33885: 3-egg set, Grant County,
extrapolated first-egg date 10 May 1981
(Julian day 130).

UWBM 33886: 3-egg set, Grant County,
extrapolated first-egg date 19 May 1981
(Julian day 139).

PSM 14200: 3-egg set, Benton County,
extrapolated first-egg date 4 May 1932
(Julian day 124).

PSM 14203: 4-egg set, Benton County,
extrapolated first-egg date 4 May 1932
(Julian day 124).

8 collected sets, from 3 colonies (with notes
on colony size):

PSM 14193, 14194, 14195: 3-egg sets
from a 30-nest colony in Benton County,
extrapolated first-egg date 27 April 1979
(Julian day 117).

WSU 48-491, 48-493: 2-egg sets from a
20-nest colony in Benton County,
extrapolated first-egg date 23 May 1932
(Julian day 143).

WSU 48-492, 48-494, 48-495: 3-egg
sets from a 30-nest colony in Benton
County, extrapolated first-egg date 23
May 1932 (Julian day 141).

Ring-billed/California Gull colonies
Larus californicus/Larus delawarensis

The following table summarizes records from W.C. Hanson for mixed colonies of these species in the Columbia River in eastern Washington. For both 1965 and 1966 Hanson estimated that California Gulls constituted 25% of the Coyote Rapids colony and 25% of the Ringold colony. Composition estimates were not given for 1967 and 1968.

Number of Eggs	Coyote Rapids, Benton County 20 May 1965	Ringold, Benton County 21 May 19 65	Coyote Rapids, Benton County 23 May 1966	Ringold, Benton County 25 May 19 66	Coyote Rapids, Benton County 18 May 1967	Ringold, Benton County 17 May 19 67	Coyote Rapids, Benton County 29 May 1968	Ringold, Franklin County 31 May 19 68
0	82	81	—	—	8	30	—	—
1	96	126	99	95	160	127	143	269
2	328	432	399	393	470	294	485	962
3	807	1915	1072	2120	997	1777	949	2793
4	24	21	41	39	33	31	19	75
5	20	27	17	36	14	21	7	44
6	4	6	3	8	3	10	5	7
Totals	1361	2608	1631	2691	1685	2290	1608	4150

Western Gull, *Larus occidentalis*

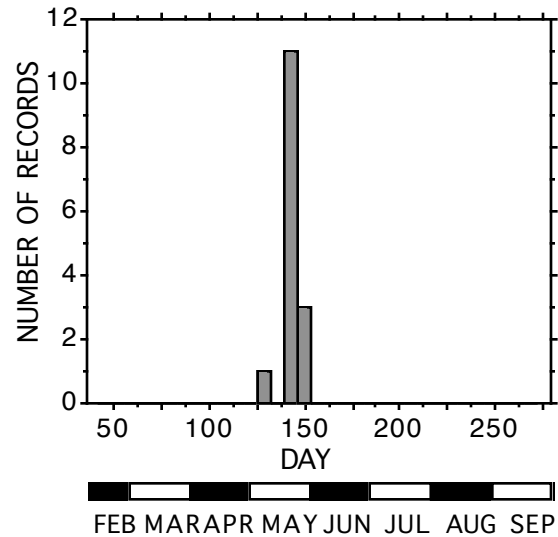
Records: 15. Egg sets=15.

Counties: Grays Harbor=13; Pacific=2.

First-egg dates: Earliest 9 May (Julian day 129); latest 2 June (Julian day 153).
Most first-egg dates are for 22 May, and they are not all from the same year.

Clutch size: 15 usable records, all for 3-egg clutches.

Season and clutch size: Not relevant; all clutches had 3 eggs.

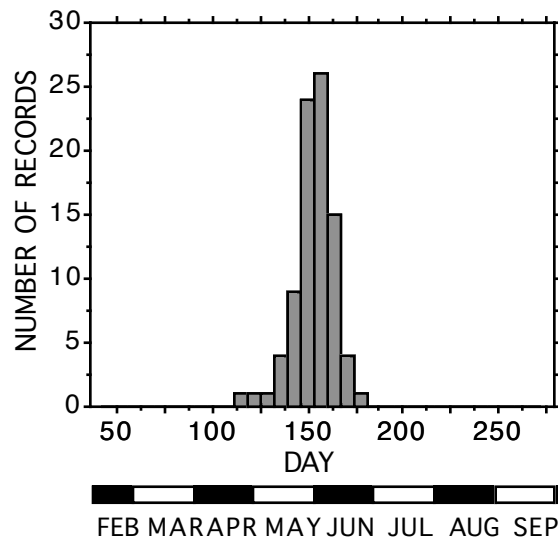


Glaucous-winged Gull, *Larus glaucescens*

Records: 86. Burke Museum nest record cards=35 (class cards=3); egg sets=51.

Counties: Clallam=1; Island=7; Jefferson=3; King=28; Kitsap=1; Pierce=4; San Juan=27; Snohomish=1; Whatcom=14.

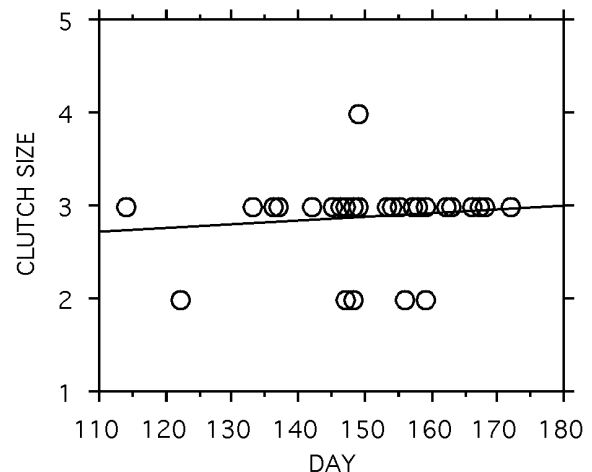
First-egg dates: Earliest 24 April (Julian day 114); latest 28 June (Julian day 179).



Most first eggs appear in late May or early June.

Clutch size: 65 usable records. Mean 2.9 eggs. Distribution: 2 eggs (N=8), 3 eggs (N=56), 4 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.015$).



Forster's Tern, *Sterna forsteri*

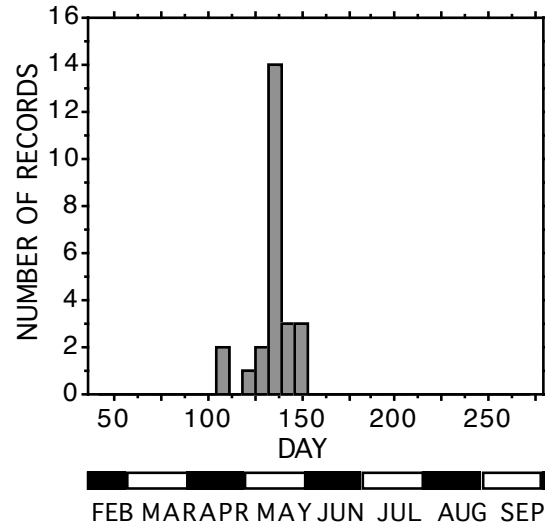
Records: 25. Burke Museum nest record cards=15 (class cards=10); egg sets=10.

Counties: Benton=1; Grant=22; Walla Walla=2.

First-egg dates: Earliest 18 April (Julian day 108); latest 31 May (Julian day 151). Most first-egg dates are tightly clustered around the median date of 15 May (Julian day 135).

Clutch size: 11 usable records. Mean 2.9 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=10).

Season and clutch size: Clutch size did not change significantly with season.



Arctic Tern, *Sterna paradisaea*

6 records for colonies or individual nests in Everett:

Burke Museum cards:

UWBM colony card: 7 pairs in 1977 and 10 pairs in 1978 on Jetty Island. Mean clutch size for 10 nests over the two years was 2.9 eggs (Manuwal, et al. 1979).

UWBM card: Nest with 3 eggs, "in Everett near Snohomish River", 23 May 1990 (extrapolated first-egg date 11 May, Julian day 131).

UWBM card: Nest with 2 eggs, Everett Naval Base, 18 June 1990 (extrapolated first-egg date 11 May, Julian day 131).

Collected Clutches:

UWBM 43033: 2-egg set (abandoned eggs), Everett, extrapolated first-egg date 17 June 1989 (Julian day 168)

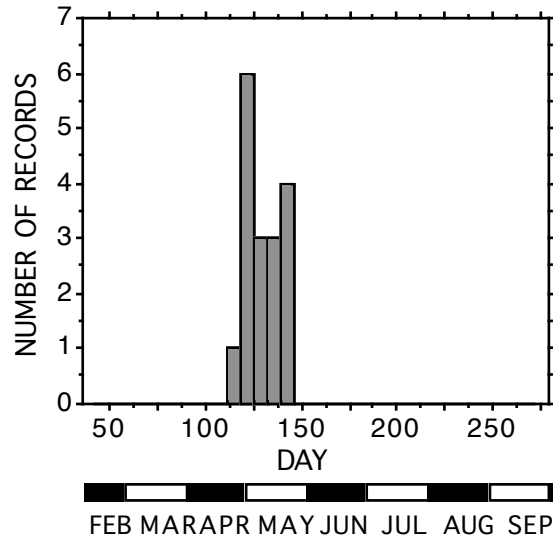
UWBM 43034: 1-egg set (abandoned egg), Everett, extrapolated first-egg date 14 May 1989 (Julian day 134).

Caspian Tern, *Sterna caspia*

Records: 17, all egg sets.

Counties: Benton=4; Grant=2; Grays Harbor= 11.

First-egg dates: Earliest 25 April (Julian day 115); latest 21 May (Julian day 141).

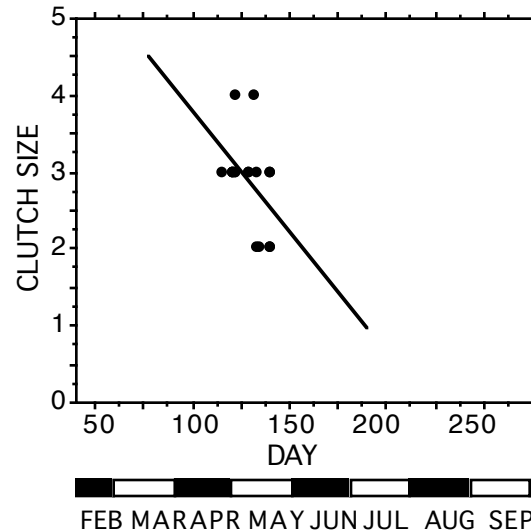


In this small sample nesting starts significantly earlier in western Washington (median date 3 May for 11 clutches) than in eastern Washington (median date 21 May for 6 clutches; Mann-Whitney test, $P = 0.002$).

Clutch size: 17 usable records. Mean 2.9 eggs. Distribution: 2 eggs (N=4), 3 eggs (N=11), 4 eggs (N=2). In this small sample

clutches were larger in eastern than in western Washington (Mann-Whitney test, $P = 0.05$). Just one of the 2-egg clutches was from eastern Washington, while both of the 4-egg clutches were from eastern Washington.

Season and clutch size: Mean clutch size decreases by 0.82 eggs over the 26-day season of nest initiation ($Y = 6.9 - 0.03X$; $r^2 = 0.20$; $p = 0.073$). However, this analysis confounds season and region because nesting is earlier in eastern Washington, where clutches are also larger.

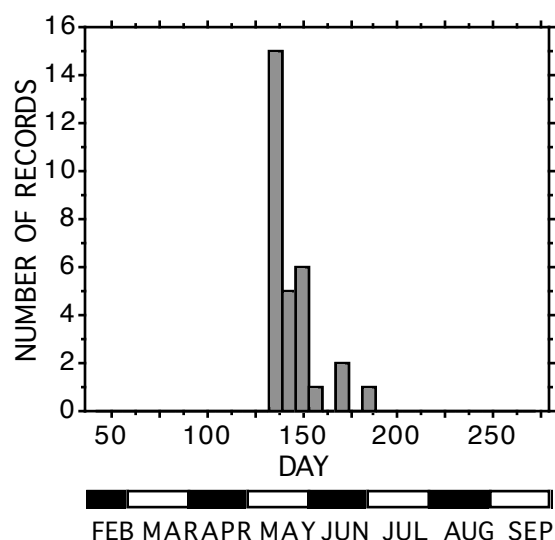


Black Tern, *Chlidonias niger*

Records: 30. Burke Museum nest record cards=11 (class cards=5); egg sets=19.

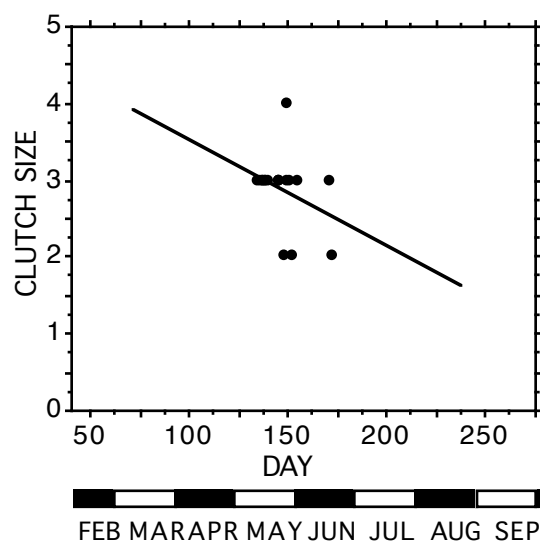
Counties: Adams=2; Benton=1; Douglas=4; Grant=12; Pend Oreille=2; Spokane=3; Yakima=6.

First-egg dates: Earliest 15 May (Julian day 135); latest 6 July (Julian day 187).



Clutch size: 18 usable records. Mean 2.9 eggs. Distribution: 2 eggs (N=3), 3 eggs (N=14), 4 eggs (N=1).

Season and clutch size: Clutch size decreases by 0.73 eggs over the 52-day season of nest initiation ($Y = 4.9 - 0.01X$; $r^2=0.10$; $p=0.193$).



ALCIDAE

Common Murre, *Uria aalge*

2 records:

Burke Museum card:
Clallam County, one young, extrapolated first-egg date 15 June 1956 (Julian day 166).

Collected clutch:

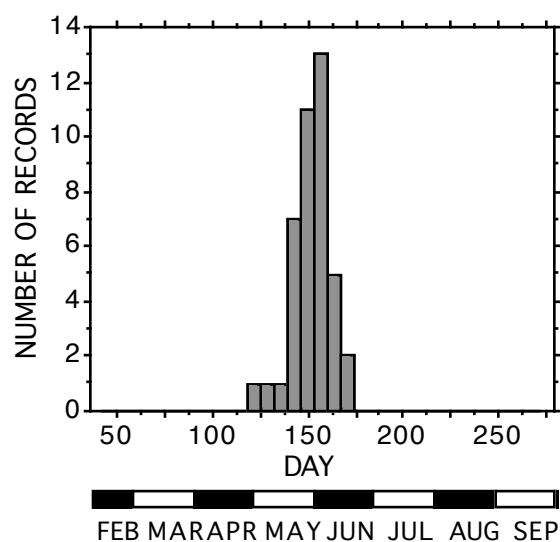
WFVZ 17474: 1-egg set, San Juan County, extrapolated first-egg date 20 June 1907 (Julian day 171).

Pigeon Guillemot, *Cephus columba*

Records: 41. Burke Museum nest record cards=4 (class cards=1); egg sets=37.

Counties: Island=16; Jefferson=3; King=4; Kitsap=7; Pierce=1; San Juan=6; Thurston=2; Whatcom=2.

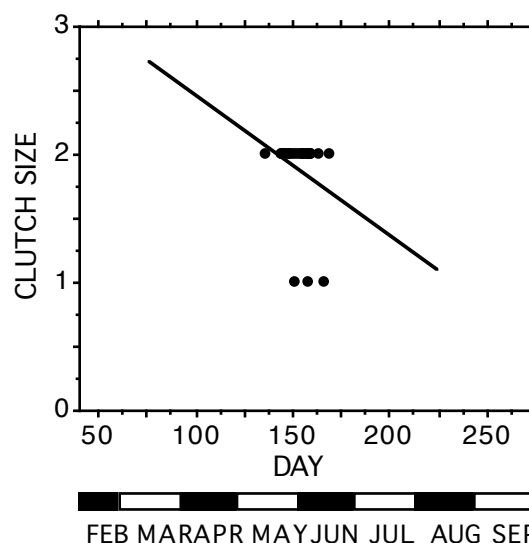
First-egg dates: Earliest 1 May (Julian day 121); latest 20 June (Julian day 171).



First-egg dates span 50 days, with a median date of 2 June (Julian day 153).

Clutch size: 31 usable records. Mean 1.9 eggs. Distribution: 1 egg (N=3), 2 eggs (N=28).

Season and clutch size: Mean clutch size decreased by 0.55 eggs over the 50-day season of nest initiation ($Y = 3.6 - 0.01X$; $r^2=0.069$; $p=0.15$).



Marbled Murrelet, *Brachyramphus marmoratus*

4 records, all museum specimens:

UWBM 43053: One chick and associated fragments of the hatched egg salvaged 27 June 1989, near Darrington, Snohomish County, estimated laying date 24 May (Reed and Wood, 1990).

UWBM 43031: One egg found on forest floor 25 July 1989, Long Island, Pacific County; no extrapolated laying date--contents decomposed.

UWBM 43098: One egg found on forest floor 7 July 1990, Long Island, Pacific County; no extrapolated laying date--contents decomposed.

WFZ 113,186: 1-egg set, collected 19 June 1925, Nooksak River, Whatcom County, estimated laying date 4 June (Kiff 1981).

Cassin's Auklet, *Ptychoramphus aleuticus*

Recorded to breed in Washington, but no records in our files.

Ancient Murrelet, *Synthliboramphus antiquus*

Recorded to breed in Washington, but no records in our files.

Rhinoceros Auklet, *Cerorhinca monocerata*

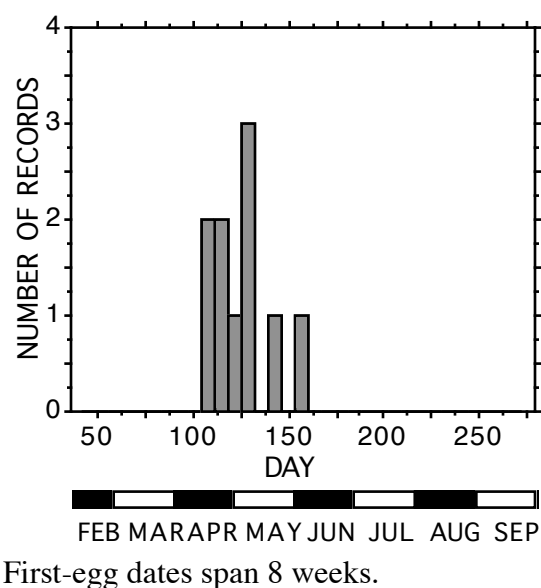
Records: 10, all egg sets.

Counties: Island=6; Jefferson=4.

First-egg dates: Earliest 20 April (Julian day 110); latest 8 June (Julian day 159).

Clutch size: 10 usable records, all 1-egg clutches.

Season and clutch size: Not relevant; all clutches had 1 egg.



Tufted Puffin, *Fratercula cirrhata*

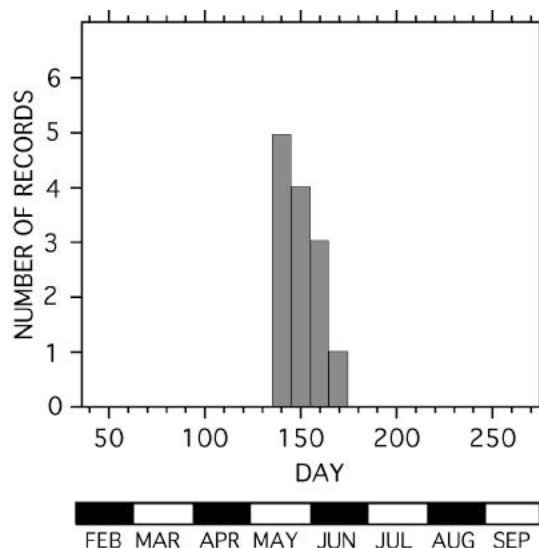
Records: 13. Burke Museum nest record cards=2; egg sets=11.

Counties: Clallam=5; Island=2; San Juan=6.

First-egg dates: Earliest 14 May (Julian day 134); latest 15 August (Julian day 227).

Clutch size: 9 usable records, all for single-egg clutches.

Season and clutch size: Not relevant; all clutches had 1 egg.



COLUMBIDAE

Rock Dove, *Columba livia*

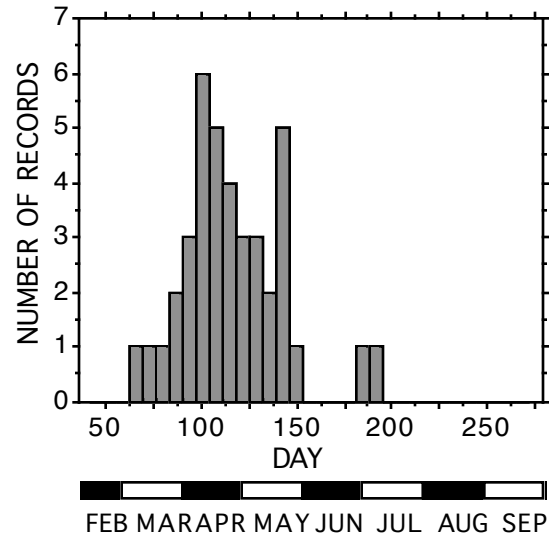
Records: 39. Burke Museum nest record cards=34 (class cards=28); egg sets=5.

Counties: King=38; Yakima=1.

First-egg dates: Earliest 8 March (Julian day 67); latest 9 July (Julian day 190). First-egg dates span 123 days.

Clutch size: 22 usable records. Mean 1.9 eggs. Distribution: 1 egg (N=3), 2 eggs (N=19).

Season and clutch size: The single egg clutches did not occur late in the season, and may represent clutches of two that had lost an egg.



Band-tailed Pigeon, *Columba fasciata*

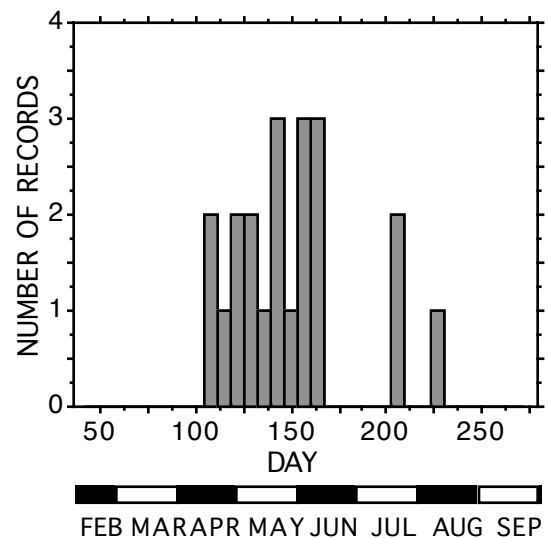
Records: 21. UW nest record cards=14 (class cards=7); egg sets=7.

Counties: King=11; Pacific=4; Pierce=6.

First-egg dates: Earliest 15 April (Julian day 105); latest 15 August (Julian day 227). First-egg dates cover a very long season of 18 weeks.

Clutch size: 10 usable records, all for single egg clutches.

Season and clutch size: Not relevant; all clutches had 1 eggs.

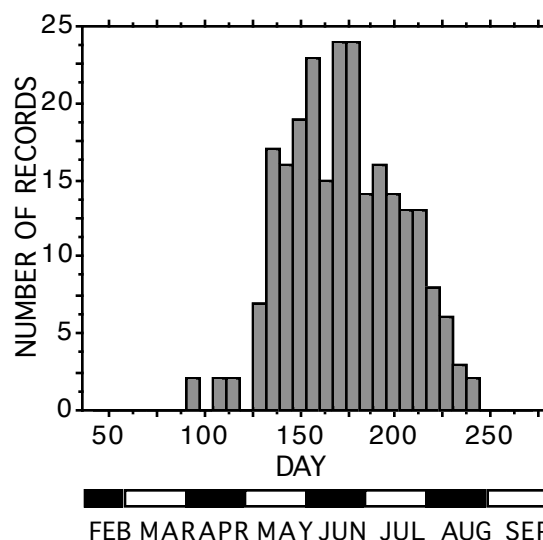


Mourning Dove, *Zenaida macroura*

Records: 241. Burke Museum nest record cards=213 (class cards=4); egg sets=22; field notes=6.

Counties: Benton=5; Chelan=3; Douglas=148; Ferry=2; Franklin=2; Garfield=9; King=1; Kittitas=5; Lincoln=1; Pierce=4; Skagit=5; Spokane=32; Walla Walla=4; Whitman=10; Yakima=10.

First-egg dates: Earliest 2 April (Julian day 92); latest 30 August (Julian day 242). A sharp onset of laying in mid-May is followed by relatively constant nest initiation until early August when new nests begin to decline in number. Median first-egg dates were similar for eastern (N=231) and western (N=10) Washington, and for lowlands (N=211) and mountains (N=30).



Clutch size: 182 usable records. Clutches of 2 eggs (N=177) strongly predominate; a few records show 1 egg (N=4) or 3 eggs (N=1).

Season and clutch size: No change, but scarcely relevant with 97% of clutches containing 2 eggs.

CUCULIDAE

Yellow-billed Cuckoo, *Coccyzus americanus*

2 records, both collected clutches:

PSM 14855: 4-egg set, King County, extrapolated first-egg date 21 June 1907 (Julian day 172).

WFVZ 34172: 3-egg set, King County, extrapolated first-egg date 9 June 1907 (Julian day 160).

This species has largely disappeared from much of its range in the western United States, including Washington.

TYTONIDAE

Barn Owl, *Tyto alba*

6 records:

Burke Museum cards:

King County, nest with 3 young,
extrapolated first-egg date 16 April 1981
(Julian day 106).

King County, nest with 3 young,
extrapolated first-egg date 16 April 1981
(Julian day 106).

Thurston County, nest with 4 young,
extrapolated first-egg date 8 April 1978,
(Julian day 98).

Thurston County, nest with 8 eggs,
extrapolated first-egg date 9 March 1983
(Julian day 68).

Franklin County, nest with 3 young,
extrapolated first-egg date 14 May 1980
(Julian day 134).

Collected clutch:

PSM 14874: 7-egg set, Pierce County,
extrapolated first-egg date 4 March 1967
(Julian day 63).

STRIGIDAE

Flammulated Owl, *Otus flammeolus*

Recorded to breed in Washington, but no records in our files.

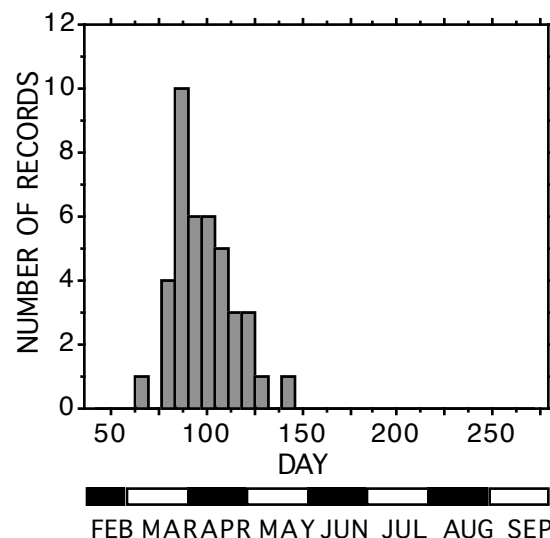
Western Screech-Owl, *Otus kennicottii*

Records: 40. Burke Museum nest record
cards=3; egg sets=35; field notes=2.

Counties: Benton=7; King=1; Kittitas=1;
Pierce=4; Spokane=1; Walla Walla=1;
Whitman=3; Yakima=22.

First-egg dates: Earliest 10 March (Julian
day 69); latest 20 May (Julian day 140). The
right skew in the distribution of first-egg
dates suggests frequent renesting after
failure.

Clutch size: 37 usable records. Mean 3.5
eggs. Distribution: 2 eggs (N=3), 3 eggs
(N=15), 4 eggs (N=15), 5 eggs (N=4).



Season and clutch size: Clutch size did not
change significantly with season.

Great Horned Owl, *Bubo virginianus*

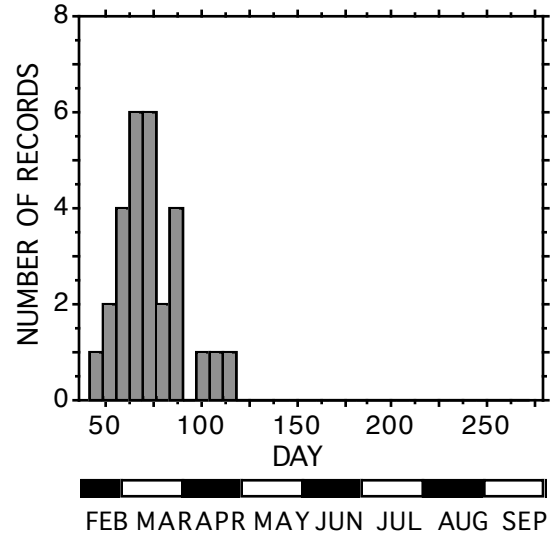
Records: 28. Burke Museum nest record cards=15 (class cards=2); egg sets=12; field notes=1.

Counties: Adams=2; Benton=2; Douglas=1; Franklin=1; King=1; Lincoln=3; Okanogan=1; Spokane=7; Walla Walla=1; Whitman=2; Yakima=7.

First-egg dates: Earliest 11 February (Julian day 42); latest 28 April (Julian day 118). This species lays very early, with a median date for Washington of 12 March (Julian day 71).

Clutch size: 11 usable records. Mean 2.7 eggs. Distribution: 2 eggs (N=6), 3 eggs (N=2), 4 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Northern Pygmy-Owl, *Glaucidium gnoma*

Recorded to breed in Washington, but no records in our files.

Burrowing Owl, *Athene cunicularia*

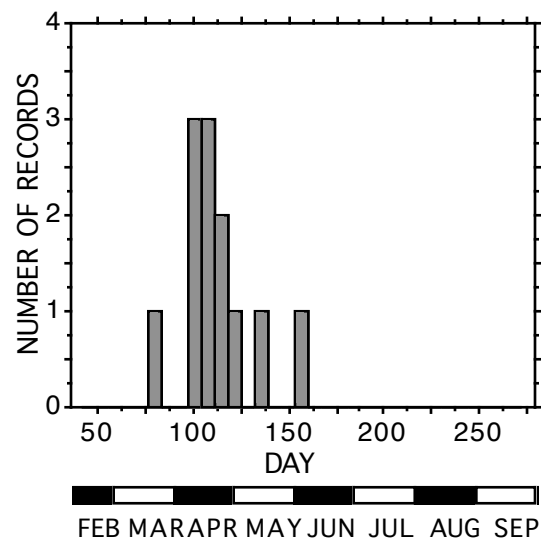
Records: 12. Burke Museum nest record cards=5; egg sets=7.

Counties: Adams=1; Benton=1; Grant=2; Lincoln=1; Okanogan=1; Spokane=1; Walla Walla=2; Yakima=3.

First-egg dates: Earliest 23 March (Julian day 82); latest 8 June (Julian day 159). First-egg dates span a 12-week season.

Clutch size: 3 usable records. Mean 9.3 eggs. Distribution: 9 eggs (N=2), 10 eggs (N=1).

Season and clutch size: Not evaluated because there were just 3 usable records.



Spotted Owl, *Strix occidentalis*

1 record: A 7-9 day old chick (UWBM 43099), salvaged 25 May 1990 on the North Fork of Tunnel Creek, Jefferson County, extrapolated first-egg date 18 April (Julian day 108).

Barred Owl, *Strix varia*

1 record: A Burke Museum card for a brood of three young near Sedro Woolley, Skagit County on 23 May 1975; extrapolated first-egg date 5 April (Julian day 95).

Great Gray Owl, *Strix nebulosa*

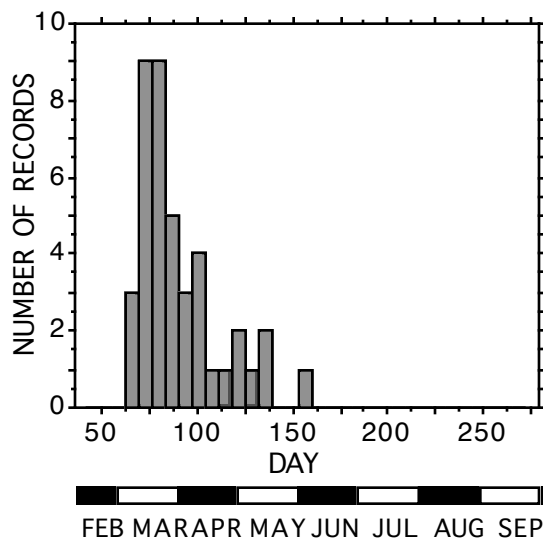
Recorded to breed in Washington, but no records in our files.

Long-eared Owl, *Asio otus*

Records: 41. Burke Museum nest record cards=24 (class cards=7); egg sets=14; field notes=3.

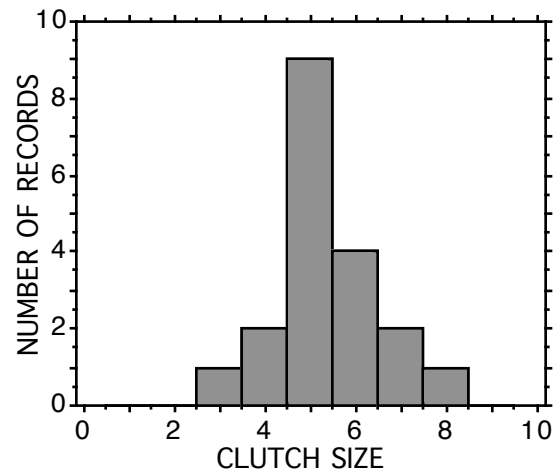
Counties: Benton=5; Douglas=3; Grant=16; Lincoln=2; Snohomish=1; Spokane=1; Walla Walla=1; Whitman=3; Yakima=9.

First-egg dates: Earliest 6 March (Julian day 65); latest 3 June (Julian day 154).



The distribution of first-egg dates peaks early (median date 24 March; Julian day 83), but extends into June.

Clutch size: 19 usable records. Mean 5.4 eggs.



Season and clutch size: No significant change with extrapolated first-egg date was observed

Short-eared Owl, *Asio flammeus*

7 records:

Burke Museum card:

King County, nest with 9 young,
extrapolated first-egg date 13 April 1966
(Julian day 103).

Collected clutches:

UWBM 5724: 5-egg set, Yakima
County, extrapolated first-egg date 12
April 1913 (Julian day 102).

PSM 14968: 7-egg set, Benton County,
extrapolated first-egg date 24 March)
1931 (Julian day 83).

WFVZ 4486: 7-egg set, Benton County,
extrapolated first-egg date 30 May 1927
(Julian day 150).

WFVZ 115256: 9-egg set, Benton
County, extrapolated first-egg date 18
March 1933 (Julian day 77).

WFVZ 17543: 7-egg set, Benton
County, extrapolated first-egg date 4
April 1931 (Julian day 94).

Field notes:

Whitman County, nest with 5 eggs,
extrapolated first-egg date 27 May 1952
(Julian day 147).

Boreal Owl, *Aegolius funereus*

Recorded to breed in Washington, but no records in our files.

Northern Saw-whet Owl, *Aegolius acadicus*

1 record: PSM 14976: 4-egg set, Yakima County, collected 12 April 1909, extrapolated first-egg date 6 April (Julian day 96).

CAPRIMULGIDAE

Common Nighthawk, *Chordeiles minor*

Records: 45. Burke Museum nest record cards=20; egg sets=25.

Counties: Adams=1; Benton=2; Douglas=1; Grant=1; Grays Harbor=1; King=4; Kittitas=1; Lewis=1; Lincoln=1; Pierce=16; Skagit=1; Spokane=14; Yakima=1.

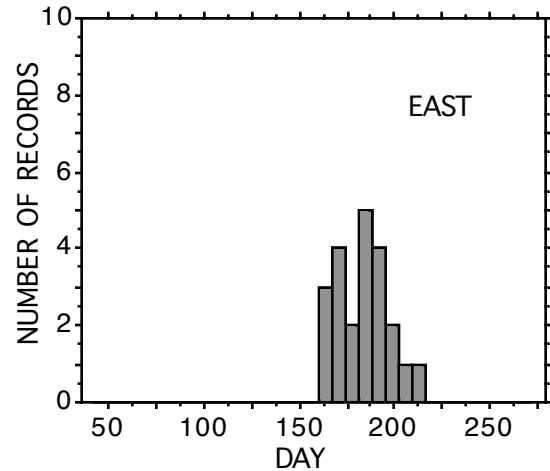
First-egg dates: Earliest 30 April (Julian day 120); latest 30 July (Julian day 211).

First-egg dates tend to be earlier for western than eastern Washington. For western Washington the median first-egg date is 24 June (Julian day 175); for eastern Washington it is 4 July (Julian day 185); this difference just misses statistical significance (Mann-Whitney test, $P = 0.066$).

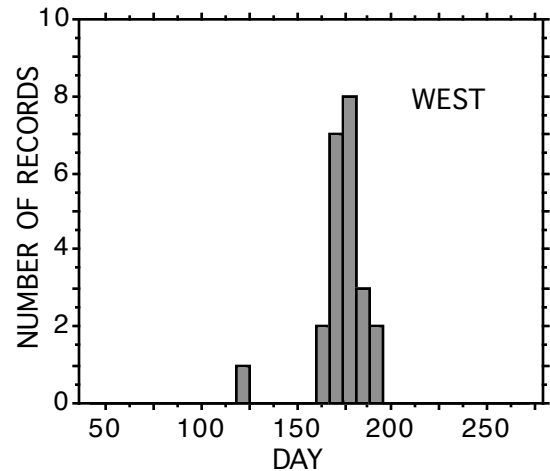
First-egg dates are also earlier for regions below 2000' (Median 24 June; Julian day 175), than for higher elevations (Median 6 July; Julian day 187); this difference is significant (Mann-Whitney test, $P = 0.03$).

Clutch size: 28 usable records. Mean 1.9 eggs. Distribution: 1 egg ($N=3$), 2 eggs ($N=25$).

Season and clutch size: No significant change with extrapolated first-egg date was observed, but most clutches had 2 eggs.



FEB MAR APR MAY JUN JUL AUG SEP



FEB MAR APR MAY JUN JUL AUG SEP

Common Poorwill, *Phalaenoptilus nuttallii*

1 record: A Burke Museum card for a clutch of 2 eggs near Liberty, Kittitas County, extrapolated first-egg date 10 July 1979 (Julian day 191).

APODIDAE

Black swift, *Cypseloides niger*

Recorded to breed in Washington, but no records in our files.

Vaux's Swift, *Chaetura vauxi*

5 records:

Burke Museum cards:

King County, nest with young,
extrapolated first-egg date 19 June 1974
(Julian day 170).

King County, nest with young,
extrapolated first-egg date 28 June 1975
(Julian day 179).

Skamania County, nest with one young,
extrapolated first-egg date 1 May 1983
(Julian day 121).

Collected clutches:

WFVZ 85054: 3-egg set, Columbia
County, extrapolated first-egg date 3
June 1899 (Julian day 154).

PSM 15069: 4-egg set, King County,
extrapolated first-egg date 24 June 1925
(Julian day 175).

White-throated Swift, *Aeronautes saxatalis*

Recorded to breed in Washington, but no records in our files.

TROCHILIDAE

Black-chinned Hummingbird, *Archilochus alexandri*

1 record: A Burke Museum card for a female collecting nesting material and, later, the appearance of two fledglings in the same yard, Spokane, Spokane County, 25 May- 13 July 1970, extrapolated first-egg date 8 June (Julian day 159).

Anna's Hummingbird, *Calypte anna*

5 records: All Burke Museum cards:

King County, 2-egg clutch, extrapolated first-egg date 28 March 1977 (Julian day 87).

King County, nest with 2 young, extrapolated first-egg date, 13 February 1978 (Julian day 44).

King County, nest with 2 young, extrapolated first-egg date, 24 February 1978 (Julian day 55).

King County, nest with 2 young, extrapolated first-egg date, 13 March 1989 (Julian day 72).

King County, nest with 2 young, extrapolated first-egg date, 21 April 1977 (Julian day 111).

Calliope Hummingbird, *Stellula calliope*

7 records:

Burke Museum cards:

Chelan County, nest with 2 young, extrapolated first-egg date 9 June 1962 (Julian day 160).

Chelan County, active nest, no information on contents, extrapolated first-egg date 13 June 1979 (Julian day 164).

Spokane County, nest with 2 young, extrapolated first-egg date 13 April 1963 (Julian day 103).

Spokane County, nest with 2 young, extrapolated first-egg date 19 June 1973 (Julian day 170).

Yakima County, nest with 2 eggs, extrapolated first-egg date 29 May 1973 (Julian day 149).

Pend Oreille County, nest with 2 eggs, extrapolated first-egg date 17 June 1959, (Julian day 166).

Collected clutch:

UWBM 34629: 2-egg set, Kittitas County, extrapolated first-egg date 23 May 1982 (Julian day 143).

Rufous Hummingbird, *Selasphorus rufus*

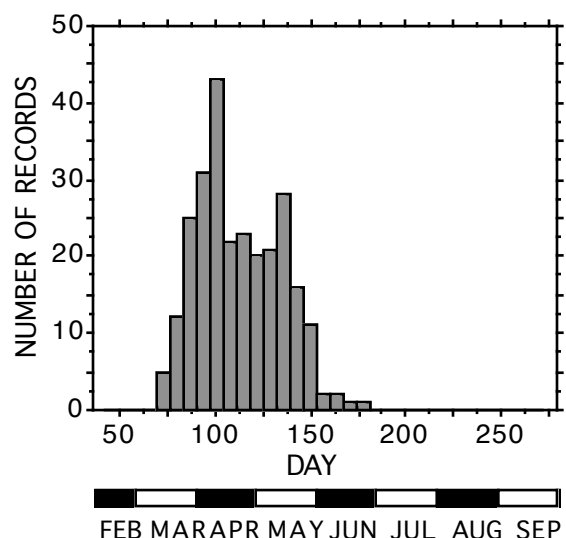
Records: 263. Burke Museum Nest Record cards=228 (class cards=8); egg sets 33; field notes=2.

Counties: Grays Harbor=25; Island=1; King=9; Kitsap=1; Pacific=210; Pierce=12; Snohomish=1; Thurston=1; Whatcom=3.

First-egg dates: Earliest 11 March (Julian day 70); latest 24 June (Julian day 175). Over 70% of records fall between 25 March (Julian day 84) and 13 May (Julian day 133). The long period of nest initiation and peaks in early April and late May suggest that females raise two broods. All records are for western Washington lowlands.

Clutch size: 166 usable records. Mean 2.0 eggs. Distribution: 1 egg (N=3), 2 eggs (N=162), 4 eggs (N=1).

Season and clutch size: Most clutches have 2 eggs, so this analysis is not relevant.



ALCEDINIDAE

Belted Kingfisher, *Ceryle alcyon*

6 records:

Burke Museum card:

King County, content not checked, extrapolated first-egg date 30 April 1981 (Julian day 120).

Collected clutches:

UWBM 67319: 6-egg set, Walla Walla County, extrapolated first-egg date 9 May 1933 (Julian day 129).

PSM 15134: 7-egg set, Pierce County, extrapolated first-egg date 5 May 1925 (Julian day 125).

PSM 15135: 6-egg set, Pierce County, extrapolated first-egg date 5 May 1934 (Julian day 125).

PSM 15136: 7-egg set, Benton County, extrapolated first-egg date 30 April 1920 (Julian day 120).

WFVZ 13506: 6-egg set, King County, extrapolated first-egg date 24 May 1927 (Julian day 144).

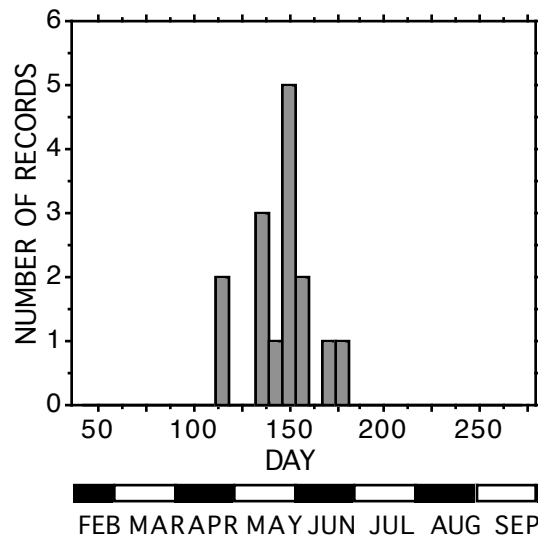
PICIDAE

Lewis's Woodpecker, *Melanerpes lewis*

Records: 15. Burke Museum nest record cards=6; egg sets=8; field notes=1.

Counties: Asotin=1; Benton=1; Klickitat=1; Okanogan=1; Spokane=2; Stevens=1; Whitman=1; Yakima=7.

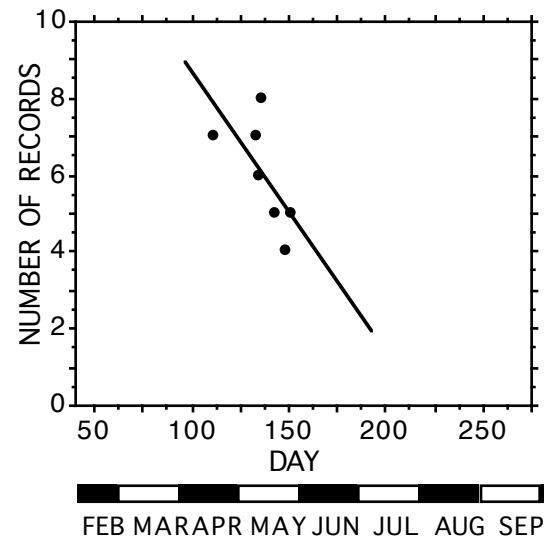
First-egg dates: Earliest 22 April (Julian day 112); latest 29 June (Julian day 180).



All records are from eastern Washington. The median first-egg date is 29 May (Julian day 149).

Clutch size: 7 usable records. Mean 6 eggs. Distribution: 4 eggs (N=1), 5 eggs (N=2), 6 eggs (N=1), 7 eggs (N=2), 8 eggs (N=1).

Season and clutch size: Clutch size decreases by 4.9 eggs over the 68-day season of nest initiation ($Y = 16 - 0.07X$; $r^2=0.45$; $p=0.099$). This relation should be interpreted with caution because there were just 7 usable records.



Acorn Woodpecker, *Melanerpes formicivorus*

Recorded to breed in Washington, but no records in our files.

Red-naped Sapsucker, *Sphyrapicus nuchalis*

2 records:

Burke Museum cards:

Okanogan County, a pair seen bringing insects to a hole, extrapolated first-egg date 15 May 1963 (Julian day 135).

Pend Oreille County, young heard in nest on 22 and 25 June 1963, extrapolated first-egg date 1 June (Julian day 152).

Red-breasted Sapsucker, *Sphyrapicus ruber*

3 records:

Burke Museum cards:

Pierce County, young in nest, extrapolated first-egg date 4 May 1977 (Julian day 124).

Whatcom County, young in nest, extrapolated first-egg date 4 June 1963 (Julian day 156).

Collected clutch:

WFVZ 93557: 6-egg set, Cowlitz County, extrapolated first-egg date 3 May 1904 (Julian day 123).

Williamson's Sapsucker, *Sphyrapicus thyroideus*

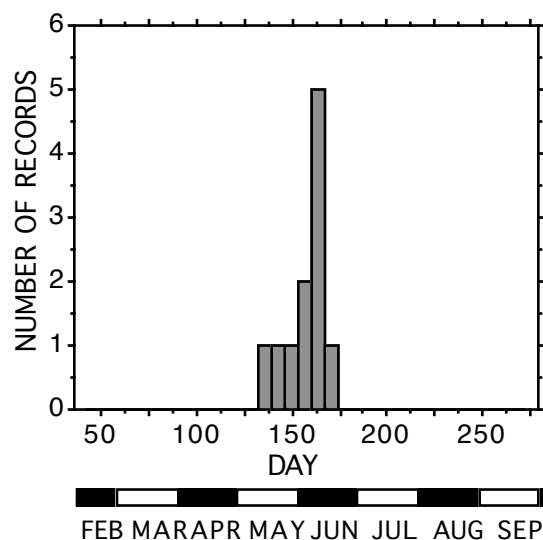
Records: 11, all Burke Museum nest record cards.

Counties: Ferry=1; Kittitas=2; Okanogan=2; Stevens=1; Yakima=5.

First-egg dates: Earliest 16 May (Julian day 136); latest 21 June (Julian day 172). All records are for eastern Washington above 2000 ft elevation. First-egg dates span a 36-day season.

Clutch size: No records reported egg numbers.

Season and clutch size: No data.



Downy Woodpecker, *Picoides pubescens*

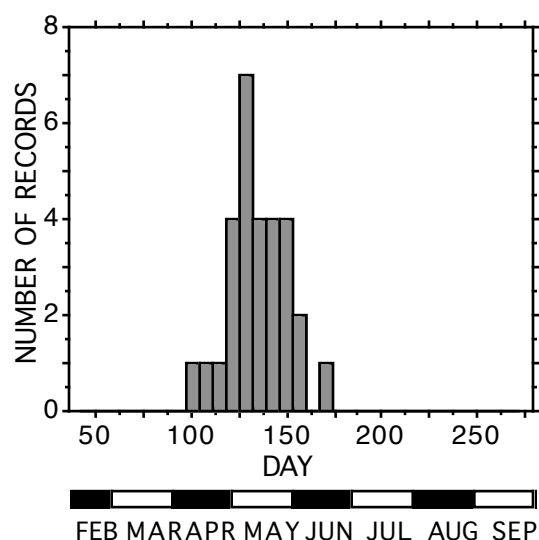
Records: 29. Burke Museum nest record cards=8; egg sets=18; field notes=3.

Counties: Clark=1; King=8; Pacific=1; Pierce=6; Snohomish=1; Spokane=3; Whitman=3; Yakima=6.

First-egg dates: Earliest 11 April (Julian day 101); latest 21 June (Julian day 172).

Clutch size: 15 usable records. Mean 4.8 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=3), 5 eggs (N=10), 7 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



Hairy Woodpecker, *Picoides villosus*

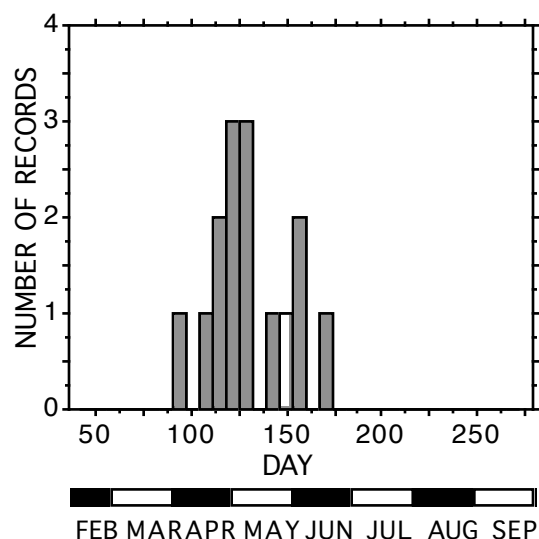
Records: 15. Burke Museum nest record cards=11 (class cards=1); egg sets=3; field notes=1.

Counties: Ferry=1; Grays Harbor=2; King=4; Kittitas=1; Pend Oreille=2; Pierce=3; Whitman=1; Yakima=1.

First-egg dates: Earliest 2 April (Julian day 92); latest 18 June (Julian day 169). Early records are from western Washington lowlands (N=9, median date 4 May, Julian 124). Later records are from above 2,000' elevation (N=6, median date 4 June, Julian day 155).

Clutch size: 15 usable records. Mean 4.0 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=13), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



White-headed Woodpecker, *Picoides albolarvatus*

4 records:

Burke Museum cards:

Yakima County, nest contents not checked, extrapolated first-egg date 23 May 1976 (Julian day 143).

Yakima County, excavating, extrapolated first-egg date 1 June 1977 (Julian day 152).

Collected clutches:

WFVZ 48570: 5-egg set, Yakima county, extrapolated first-egg date 4 June 1943 (Julian day 155).

WFVZ 88419: 4-egg set, Yakima county, extrapolated first-egg date 11 June 1946 (Julian day 162).

Three-toed Woodpecker, *Picoides tridactylus*

3 records:

Burke Museum cards:

Pend Oreille County, nest with young, extrapolated first-egg date 3 June 1965 (Julian day 154).

Whatcom County, nest with young, extrapolated first-egg date 28 May 1970 (Julian day 148).

King/Shaw notes:

Asotin County, nest with young, extrapolated first-egg date 11 June 1923 (Julian day 162).

Black-backed Woodpecker, *Picoides arcticus*

5 records:

Burke Museum cards:

Lincoln Co, observations of nestlings, extrapolated first-egg date 11 May 1963 (Julian day 131).

Lincoln Co, observations of nestlings, extrapolated first-egg date 29 May 1963 (Julian day 149).

Okanogan County, observations of nestlings, extrapolated first-egg date 6 May 1980 (Julian day 126).

Females with dissected ovaries:

UWBM 44657: Chelan County, clutch=5 eggs, extrapolated first-egg date 8 May 1990 (Julian day 128).

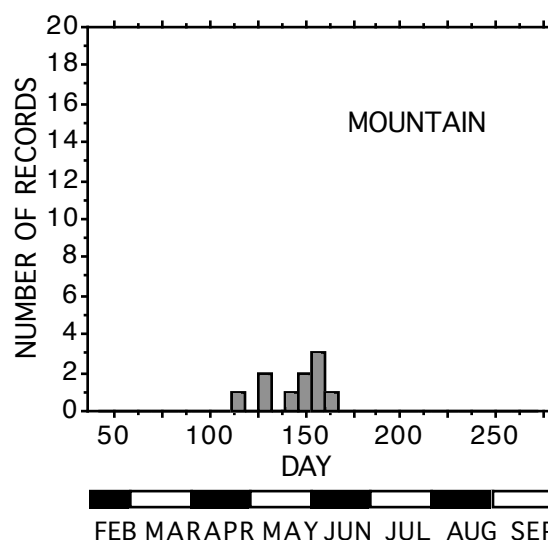
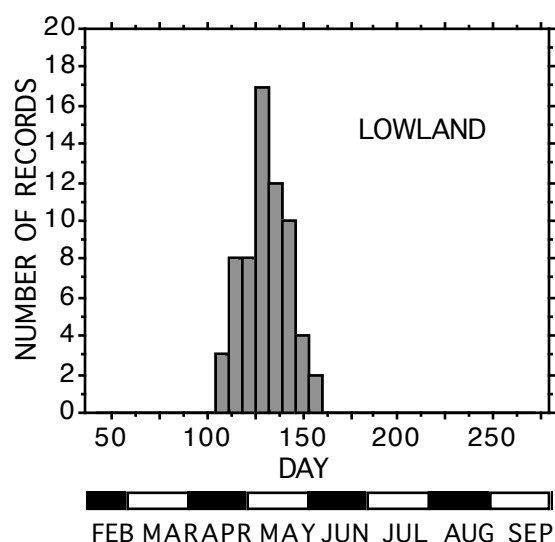
UWBM 44658: Lewis County, clutch=7 eggs, extrapolated first-egg date 31 May 1987 (Julian day 151).

Northern Flicker, *Colaptes auratus*

Records: 74. Burke Museum nest record cards=40 (class cards=13); egg sets=27; field notes=7.

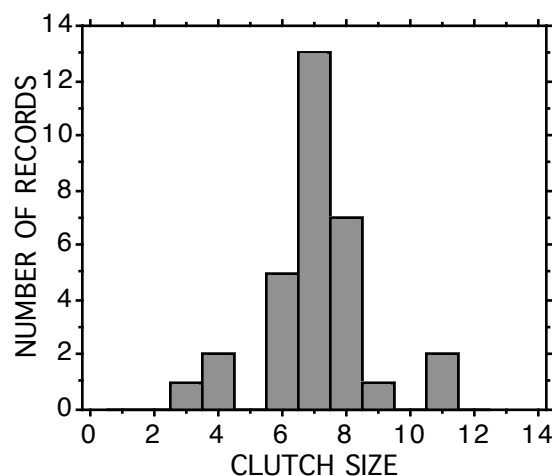
Counties: Adams=4; Benton=2; Chelan=2; Douglas=3; Ferry=1; Grant=1; Island=3; King=7; Kittitas=2; Klickitat=1; Okanogan=4; Pacific=1; Pierce=15; San Juan=1; Snohomish=1; Spokane=6; Stevens=2; Whatcom=1; Whitman=6; Yakima=11.

First-egg dates: Earliest 16 April (Julian day 106); latest 14 June (Julian day 165).



The nesting season is earlier for lowlands (N=64, median date 10 May, Julian day 130) than for areas above 2,000' (N=10, median date 1 June, Julian day 152).

Clutch size: 31 usable records. Mean 7.1 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Pileated Woodpecker, *Dryocopus pileatus*

4 records, all Burke Museum cards:

King County, 1 young, extrapolated first-egg date 2 May 1974 (Julian day 122).

King County, 3 young, extrapolated first-egg date 2 May 1978 (Julian day 122).

King County, class card, nest contents not checked, extrapolated first-egg date 22 April 1976 (Julian day 112).

Spokane County, class card, nest contents not checked, extrapolated first-egg date 15 May 1976 (Julian day 135).

TYRANNIDAE

Olive-sided Flycatcher, *Contopus cooperi*

4 records:

Burke Museum cards:

Kittitas County, no data on contents, extrapolated first-egg date 1 July 1961 (Julian day 182).

Pacific County, no data on contents, extrapolated first-egg date 30 May 1985 (Julian day 150).

Collected clutches:

PSM 15241: 3-egg set, King County, extrapolated first-egg date 24 June 1907 (Julian day 175).

PSM 15242: 3-egg set, King County, extrapolated first-egg date 12 June 1893 (Julian day 163).

Western Wood-Pewee, *Contopus sordidulus*

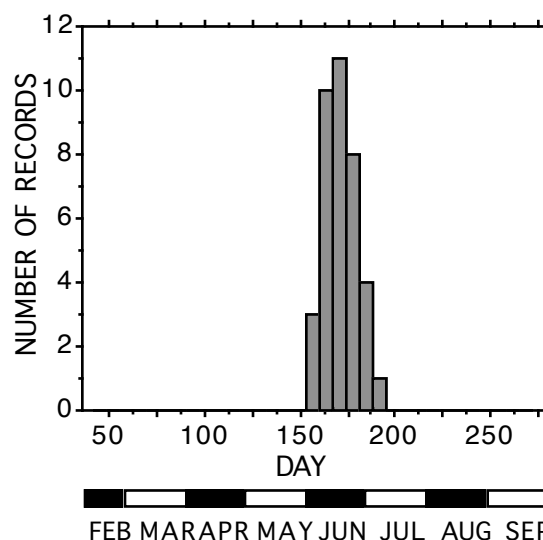
Records: 37. Burke Museum nest record cards=17; egg sets=11; field notes=9.

Counties: Chelan=2; Ferry=1; Garfield=1; King=6; Kittitas=1; Okanogan=3; Pierce=2; Spokane=6; Walla Walla=1; Whitman=9; Yakima=4.

First-egg dates: Earliest 4 June (Julian day 155); latest 11 July (Julian day 192). First-egg date span a short season of 37 days.

Clutch size: 19 usable records. Mean 3.0 eggs. Distribution: 2 eggs (N=2), 3 eggs (N=14), 4 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.

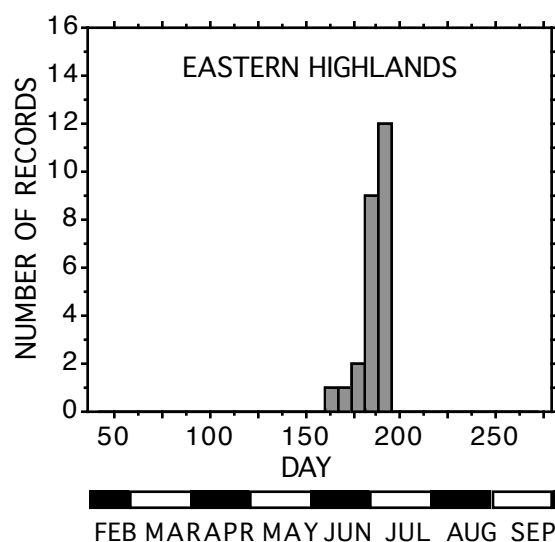
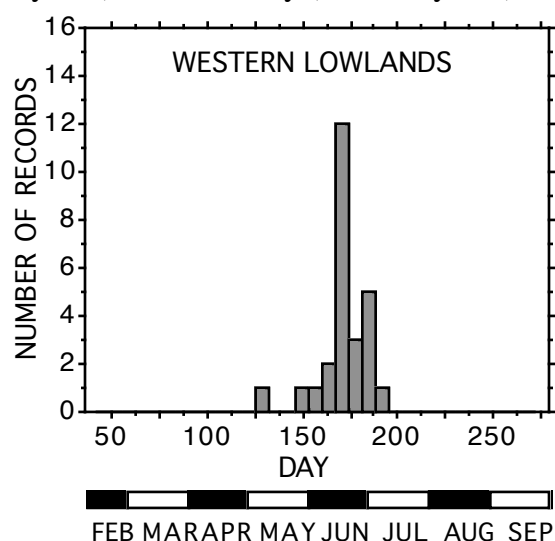


Willow Flycatcher, *Empidonax traillii*

Records: 90. Burke Museum nest record cards=31; egg sets=21; field notes=38.

Counties: Chelan=1; Island=1; King=9; Pierce=15; San Juan=1; Spokane=26; Walla Walla=1; Whitman=34; Yakima=2.

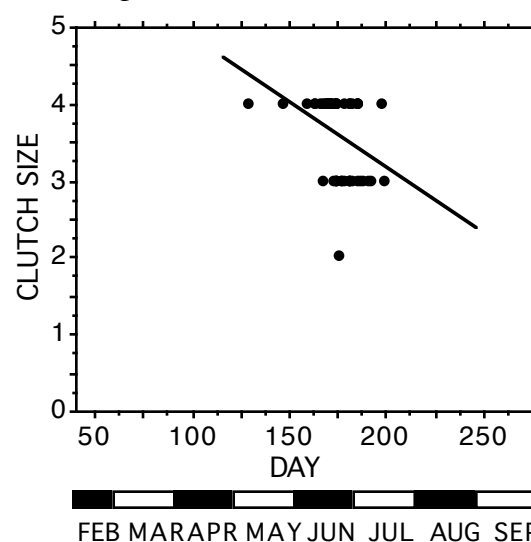
First-egg dates: Earliest 10 May (Julian day 130); latest 22 July (Julian day 203).



Nesting is earlier in western Washington lowlands (N=26; median date 21 June; Julian day 172) than in eastern Washington above 2,000' (N=26; median date 4 July; Julian day 185).

Clutch size: 50 usable records. Mean 3.6 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=18), 4 eggs (N=31).

Season and clutch size: Clutch size diminishes by 1.25 eggs over the 73-day season of nest initiation ($Y = 6.61 - 0.02X$; $r^2=0.14$; $p=0.0079$).



Parasitism: Of 77 nests containing eggs 6 also contained Brown-headed Cowbird eggs.

Least Flycatcher, *Empidonax minimus*

Recorded to breed in Washington, but no records in our files.

Hammond's Flycatcher, *Empidonax hammondi*

6 records:

Burke museum cards:

Ferry County, a brood of 2 young,
extrapolated first-egg date 31 May 1976
(Julian day 151).

Ferry County, a brood of 3 young,
extrapolated first-egg date 25 May 1975
(Julian day 145).

Pend Oreille County, a nest with 4 eggs,
extrapolated first-egg date 17 June 1963
(Julian day 168).

Pend Oreille County, a nest with no
brood data, extrapolated first-egg date 8
June 1963 (Julian day 159).

Collected clutches:

PSM 468-T853: 4-egg set, Chelan
County, extrapolated first-egg date 7
June 1933 (Julian day 158).

WFVZ 124928: 3-egg set, Chelan
County, extrapolated first-egg date 3
June 1923 (Julian day 154).

Dusky Flycatcher, *Empidonax oberholseri*

Records: 24. Burke Museum nest record
cards=9; egg sets=6; field notes=9.

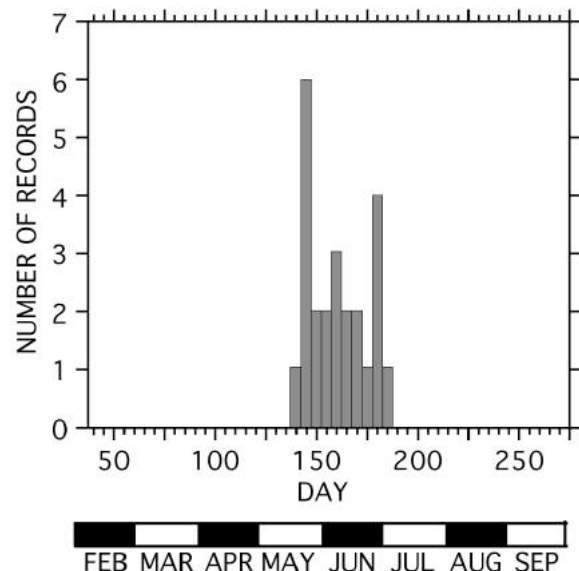
Counties: Chelan=6; Kittitas=1;
Okanogan=5; Spokane=3; Whitman=9.

First-egg dates: Earliest 22 May (Julian
day 142); latest 4 July (Julian day 185).

Clutch size: 12 usable records. Mean 3.8
eggs. Distribution: 3 eggs (N=3), 4 eggs
(N=9).

Season and clutch size: Clutch size did not
change significantly with season.

Parasitism: Of 18 nests containing eggs,
three also contained Brown-headed Cowbird
eggs; a fourth nest with young also
contained a young cowbird.



Gray Flycatcher, *Empidonax wrightii*

2 records, both from specimens.

UWBM 32868: laying female, clutch size of 4 eggs, Okanogan County, extrapolated first-egg date 24 June 1980.

WSU 90-93: nest with 4 nestlings, Klickitat County, extrapolated first-egg date 25 May 1990.

Pacific-slope Flycatcher, *Empidonax difficilis*

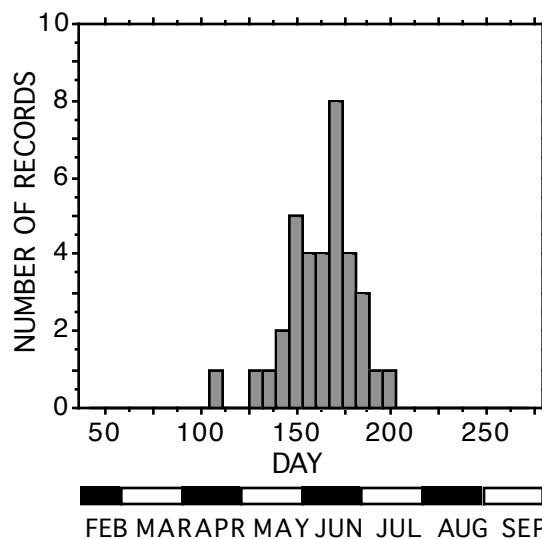
Records: 35. Burke Museum nest record cards=12; egg sets=14; field notes=9.

Counties: Douglas=1; Grays Harbor=1; King=8; Pacific=1; Pierce=8; Spokane=6; Thurston=1; Whatcom=1; Whitman=8.

First-egg dates: Earliest 21 April (Julian day 111); latest 15 July (Julian day 196). First-egg dates are essentially unimodal with a 12-week season.

Clutch size: 21 usable records. Mean 3.8 eggs. Distribution: 3 eggs (N=5), 4 eggs (N=15), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.

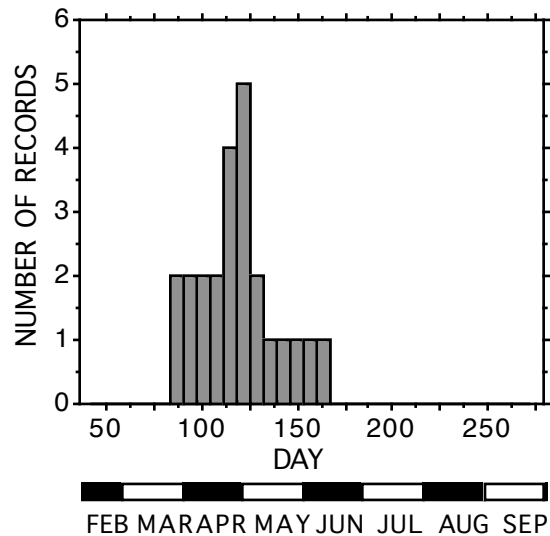


Say's Phoebe, *Sayornis saya*

Records: 24. Burke Museum nest record cards=19 (class cards=1); egg sets=5.

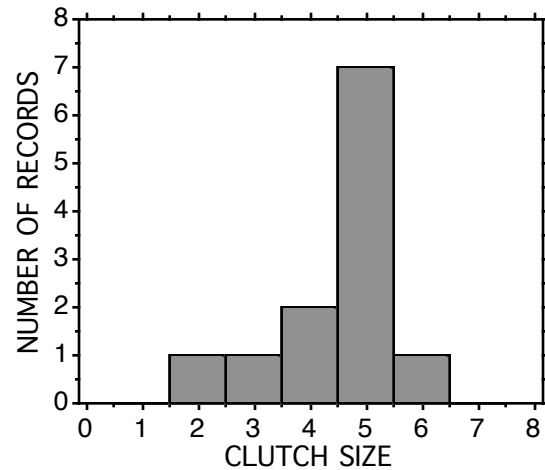
Counties: Adams=1; Benton=2; Douglas=9; Grant=4; Klickitat=1; Lincoln=1; Okanogan=1; Whitman=4; Yakima=1.

First-egg dates: Earliest 26 March (Julian day 85); latest 11 June (Julian day 162).

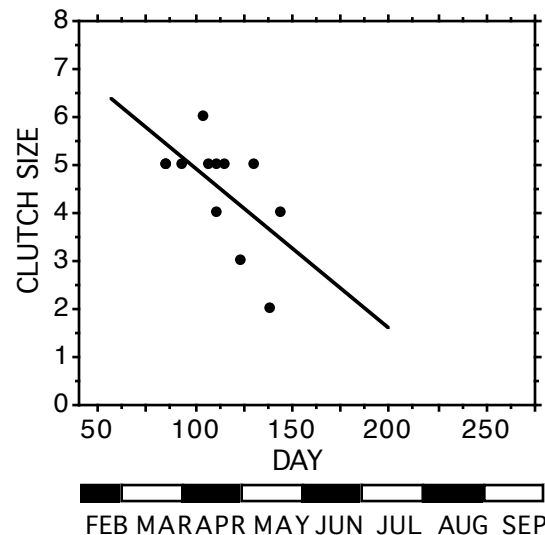


First-egg dates span a 12-week season.

Clutch size: 12 usable records. Mean 4.5 eggs.



Season and clutch size: Clutch size declines by 2.6 eggs over the 77-day period of nest initiation ($Y = 8.28 - 0.03X$; $r^2=0.36$; $p=0.039$).



Ash-throated Flycatcher, *Myiarchus cinerascens*

3 records:

Burke Museum card:

Adams County, nestlings, extrapolated first-egg date 18 June 1966 (Julian day 169).

Collected clutches:

UWBM 27123: 4-egg set, Yakima County, extrapolated first-egg date 3 July 1923 (Julian day 184).

PSM 15315: 4-egg set, Yakima County, extrapolated first-egg date 18 June 1929 (Julian day 169).

Western Kingbird, *Tyrannus verticalis*

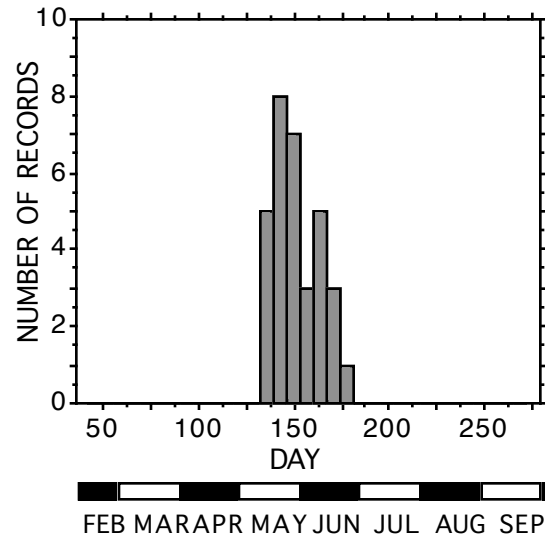
Records: 32. Burke Museum nest record cards=20; egg sets=12.

Counties: Adams=1; Benton=2; Chelan=2; Douglas=13; Ferry=1; Grant=5; Lincoln=1; Okanogan=2; Walla Walla=1; Whitman=2; Yakima=2.

First-egg dates: Earliest 13 May (Julian day 133); latest 28 June (Julian day 179).

Clutch size: 14 usable records. Mean 4.1 eggs. Distribution: 4 eggs (N=12), 5 eggs (N=2).

Season and clutch size: Clutch size did not change significantly with season.



Eastern Kingbird, *Tyrannus tyrannus*

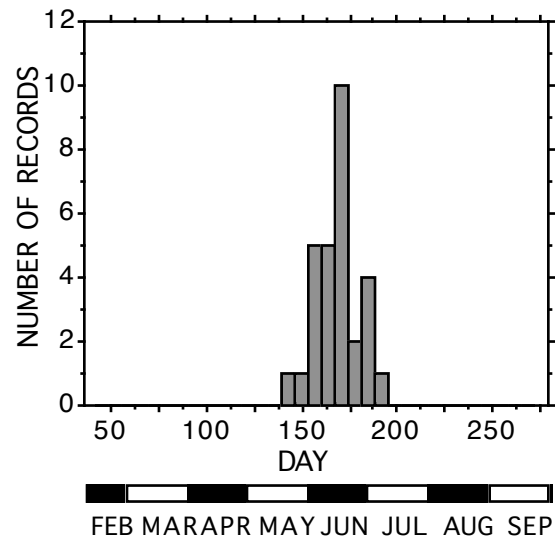
Records: 29. Burke Museum nest record cards=18; egg sets=4; field notes=7.

Counties: Benton=1; Chelan=2; Douglas=6; King=1; Lincoln=1; Okanogan=1; Spokane=6; Whitman=9; Yakima=2.

First-egg dates: Earliest 23 May (Julian day 143); latest 8 July (Julian day 189). The median date is 17 June (Julian day 168), but 5 records above 2,000' are later, with median date 27 June (Julian day 178).

Clutch size: 8 usable records. Mean 4.1 eggs. Distribution: 4 eggs (N=7), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



ALAUDIDAE

Sky Lark, *Alauda arvensis*

Recorded to breed in Washington in the San Juan Islands, but no records in our files. It was introduced to Vancouver Island, BC, and spread to San Juan Island on its own (Smith et al. 1997).

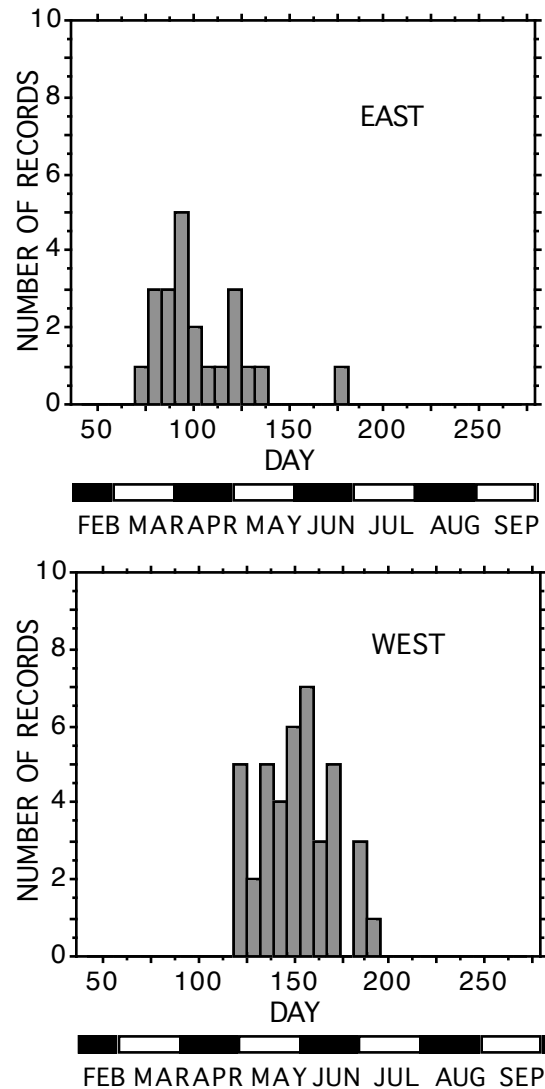
Horned Lark, *Eremophila alpestris*

Records: 63. Burke Museum nest record cards=12 (class cards=1); egg sets=46; field notes=5.

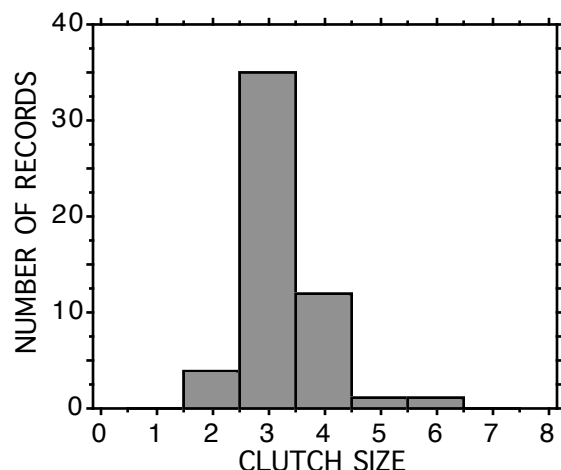
Counties: Benton=12; Clallam=2; Grant=1; Jefferson=1; Lincoln=1; Pierce=38; Spokane=4; Whitman=1; Yakima=3.

First-egg dates: Earliest 14 March (Julian day 73); latest 12 July (Julian day 193). The season is much earlier in eastern Washington (median first-egg date 7 April; Julian day 97) than in western Washington (median first-egg date 30 May; Julian day 150), a highly significant difference (Mann-Whitney test, $P < 0.001$).

The west-side form, known as the Streaked Horned Lark, is now a threatened race because of habitat loss.

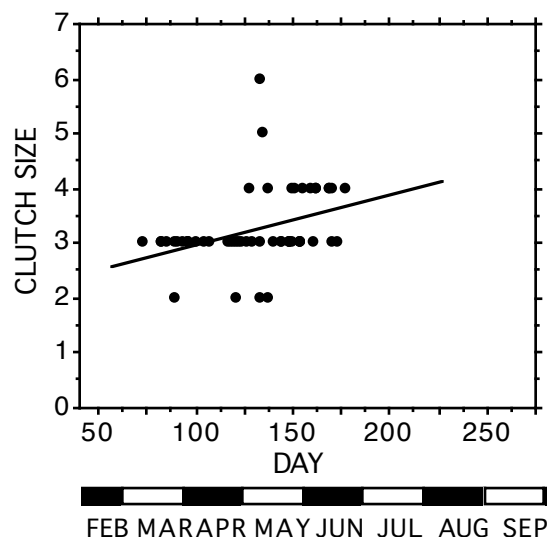


Clutch size: 52 usable records. Mean 3.2 eggs.



Season and clutch size: In both eastern and western Washington clutch size increases as the season progresses. For both sides of the Cascades this increase is significant ($P < 0.05$), and the rate of increase is similar, b

being 0.015 for western Washington and 0.016 for eastern Washington. The graph below plots the data for the entire state.



HIRUNDINIDAE

Purple Martin, *Progne subis*

5 records:

Burke Museum cards:

Pierce County, nest with 5 young, extrapolated first-egg date 14 April 1979 (Julian day 104).

Pierce County, nest contents not checked, extrapolated first-egg date 6 May 1979 (Julian day 126).

Thurston County, nest with 4 young, extrapolated first-egg date 3 July 1961 (Julian day 184).

San Juan County, nest contents not checked, 1976, no specific date.

Collected clutch:

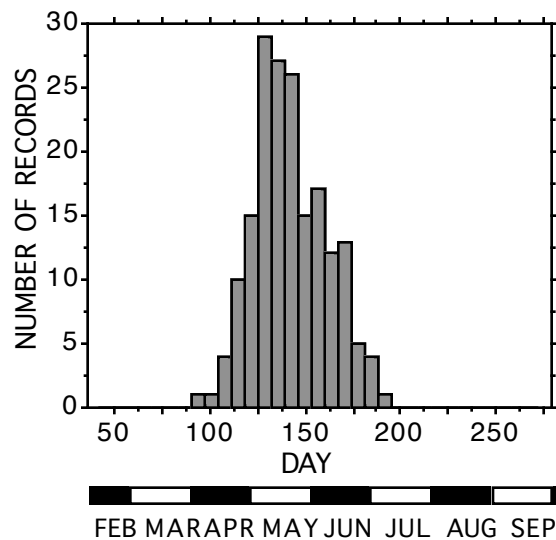
PSM 15386: 5-egg set, Pierce County, extrapolated first-egg date 28 May 1934 (Julian day 148).

Tree Swallow, *Tachycineta bicolor*

Records: 180. Burke Museum nest record cards=168 (class cards=21); egg sets=11; field notes=1.

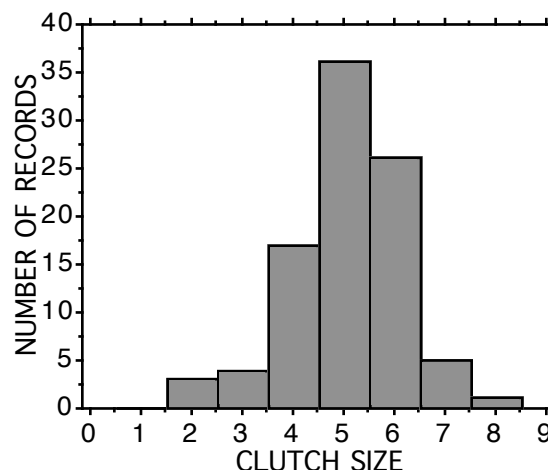
Counties: Chelan=1; Ferry=1; Grays Harbor=1; Island=13; King=30; Kittitas=3; Lincoln=1; Pacific=2; Pend Oreille=2; Pierce=22; Skagit=2; Spokane=25; Stevens=2; Whatcom=74; Yakima=1.

First-egg dates: Earliest 7 April (Julian day 97); latest 9 July (Julian day 190).

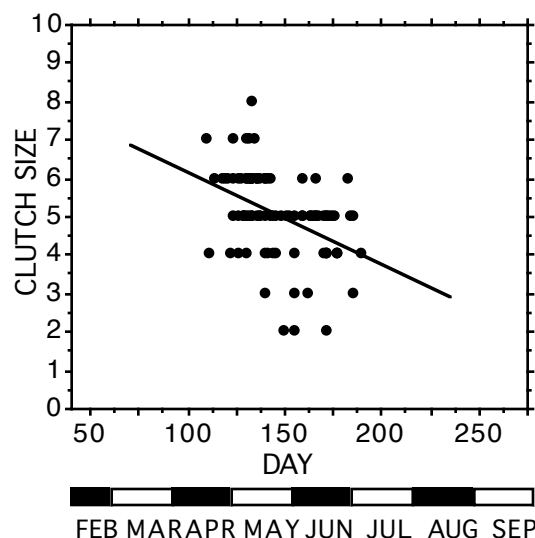


Median first-egg date is 21 May (Julian day 141). The 3-month season of nest initiations is skewed right. Late clutches probably represent delayed nesting by yearling females and renestings after failures; some may also represent second broods. Yearling females can be distinguished from older females by their brownish backs, but few records noted female age.

Clutch size: 92 usable records. Mean 5.1 eggs.



Season and clutch size: Clutch size shows a significant decrease of 2.0 eggs over the 83-day season of nest initiation ($Y = 8.64 - 0.02X$; $r^2=0.188$; $p=0.0001$).

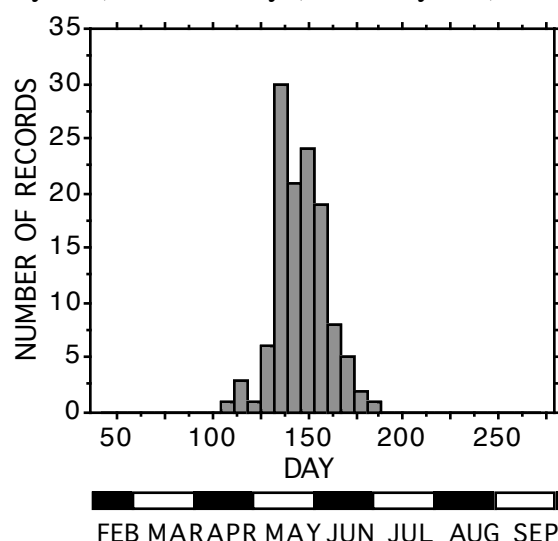


Violet-green Swallow, *Tachycineta thalassina*

Records: 121. Burke Museum nest record cards=98 (class cards=15); egg sets=23.

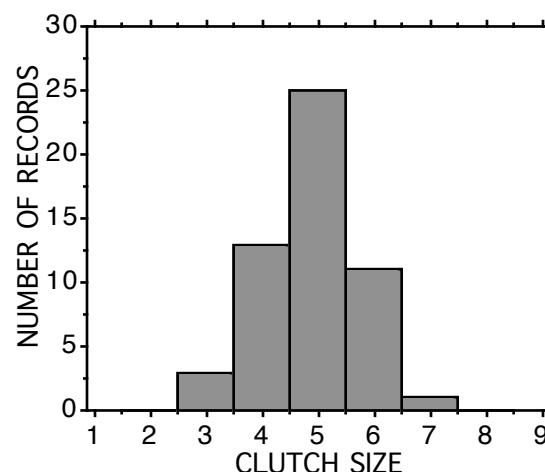
Counties: Island=14; King=19; Lewis=1; Okanogan=3; Pacific=8; Pend Oreille=1; Pierce=18; Snohomish=1; Spokane=24; Thurston=1; Walla Walla=1; Whatcom=27; Yakima=3.

First-egg dates: Earliest 18 April (Julian day 108); latest 2 July (Julian day 183).

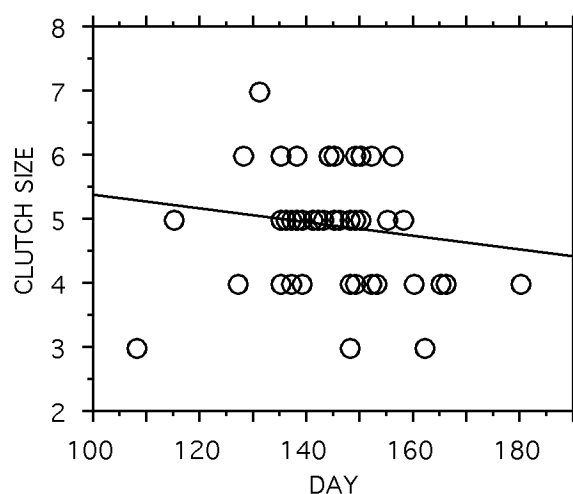


Median first-egg date is 25 May (Julian day 145). The distribution of first-egg dates is narrower and less skewed to the right than that for Tree Swallows. Again, yearling females may be distinguished from older females by brownish backs, but few records make note of female age.

Clutch size: 53 usable records. Mean 4.89 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.023$).

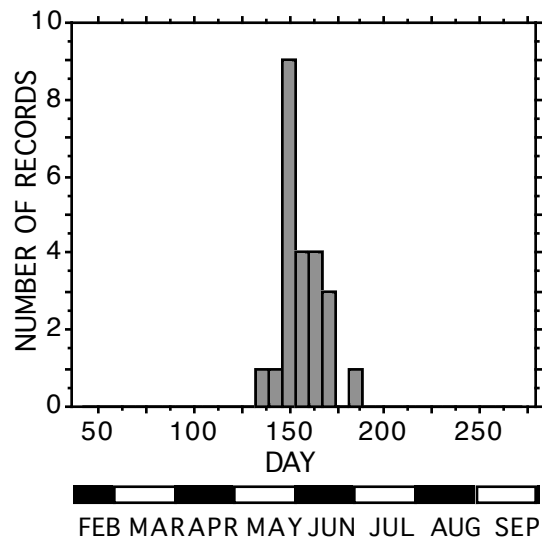


Northern Rough-winged Swallow, *Stelgidopteryx serripennis*

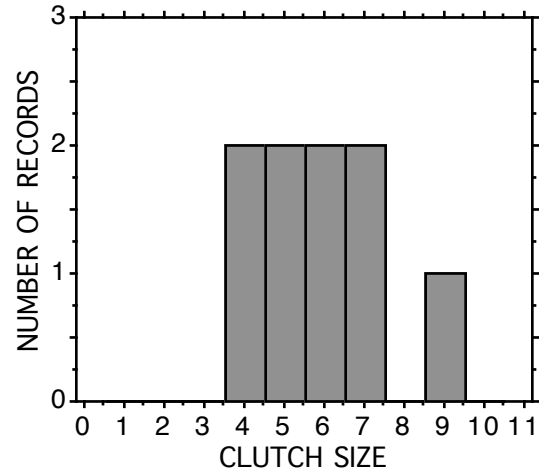
Records: 23. Burke Museum nest record cards=7 (class cards=1); egg sets=10; field notes=6.

Counties: Chelan=1; Island=1; Jefferson=1; King=6; Pend Oreille=1; Pierce=4; Spokane=1; Walla Walla=1; Whatcom=1; Whitman=6.

First-egg dates: Earliest 14 May (Julian day 134); latest 7 July (Julian day 188).



Clutch size: 9 usable records. Mean 5.9 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Bank Swallow, *Riparia riparia*

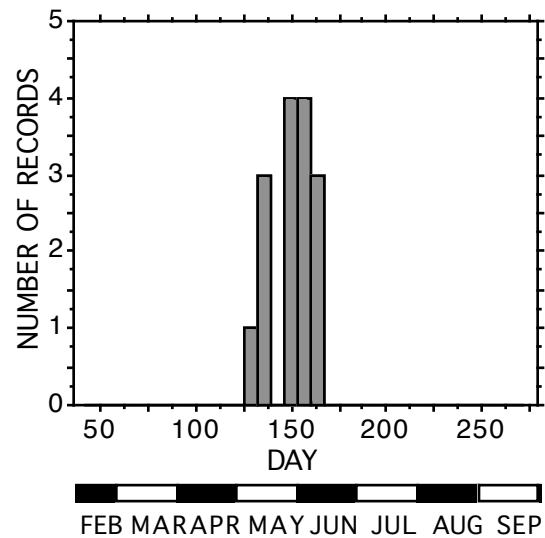
Records: 15. Burke Museum nest record cards=8 (class cards=1); egg sets=7.

Counties: Asotin=1; Benton=3; Chelan=4; Okanogan=1; Pend Oreille=1; Spokane=3; Yakima=2.

First-egg dates: Earliest 12 May (Julian day 132); latest 14 June (Julian day 165).

Clutch size: 6 usable records. Mean 5.3 eggs. Distribution: 4 eggs (N=1), 5 eggs (N=2), 6 eggs (N=3).

Season and clutch size: Not evaluated because there were just 6 usable records.



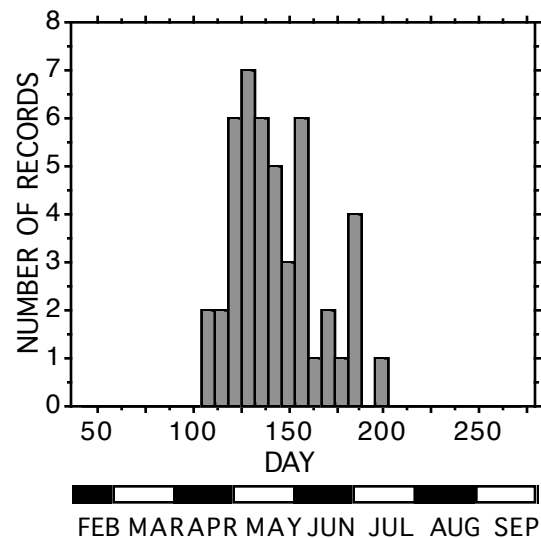
Cliff Swallow, *Petrochelidon pyrrhonota*

Records: 46. Burke Museum nest record cards=34 (class cards=10); egg sets=11; field notes=1.

Counties: Ferry=1; Grays Harbor=2; Island=1; King=13; Kitsap=5; Kittitas=1; Lewis=1; Lincoln=1; Okanogan=1; Pacific=1; Pierce=1; Snohomish=1; Spokane=4; Whatcom=5; Whitman=1; Yakima=7.

First-egg dates: Earliest 18 April (Julian day 108); latest 16 July (Julian day 197). The 89-day span of first-egg dates and the right skew in the distribution could be due to second broods or to very late starts in some colonies.

Clutch size: 10 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=1); 4 eggs (N=9).



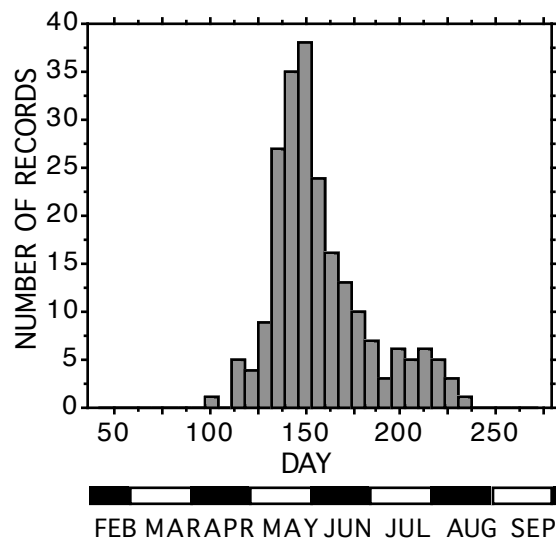
Season and clutch size: Clutch size did not change significantly with season.

Barn Swallow, *Hirundo rustica*

Records: 219. Burke Museum nest record cards=194 (class cards=88); egg sets=15; field notes=10.

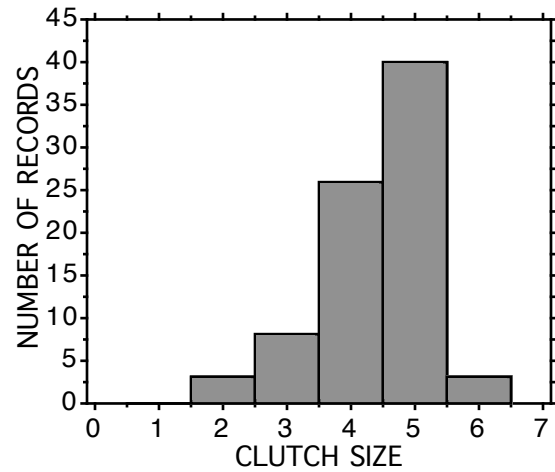
Counties: Adams=1; Clallam=2; Ferry=2; Grant=10; Grays Harbor=1; Island=4; King=77; Kitsap=9; Kittitas=10; Lincoln=5; Mason=2; Pacific=21; Pend Oreille=1; Pierce=9; Skagit=4; Snohomish=4; Spokane=7; Whatcom=32; Whitman=10; Yakima=8.

First-egg dates: N=218. Earliest 10 April (Julian day 100); latest 24 August (Julian day 236).

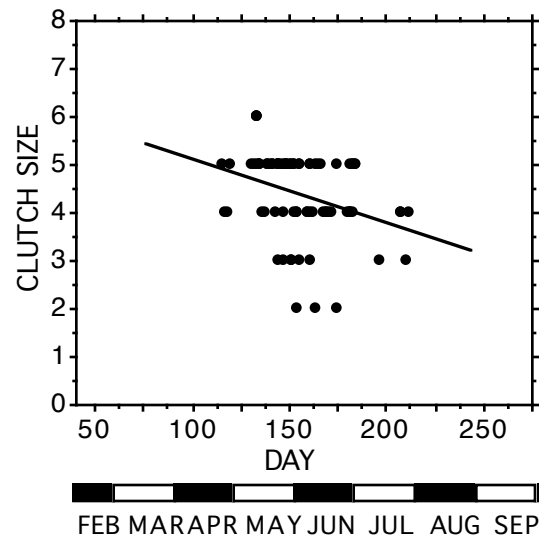


76% of first-egg dates fall between 12-May (Julian day 132) and 23 June (Julian day 174). The right skew in the strong early peak of May and June in the distribution of first-egg dates suggests renesting after failures and, perhaps, later nest initiation by yearling females. However, laying continues into August, and the second peak of laying in late July and early August surely represents second broods.

Clutch size: 80 usable records. Mean 4.4 eggs.



Season and clutch size: Clutch size diminishes by 1.9 eggs over the 136-day season of nest initiation ($Y = 6.50 - 0.01X$; $r^2=0.11$; $p=0.0029$).



CORVIDAE

Gray Jay, *Perisoreus canadensis*

2 records, both collected clutches:

UWBM 12649: 4-egg set, Snohomish County, extrapolated first-egg date 14 April 1937 (Julian day 104).

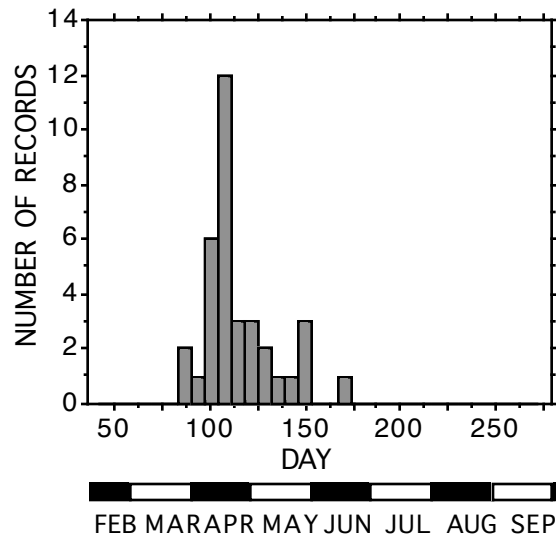
PSM 15445: 3-egg set, King County, extrapolated first-egg date 15 April 1907 (Julian day 105).

Steller's Jay, *Cyanocitta stelleri*

Records: 35. Burke Museum nest record cards=5 (class cards=2); egg sets=30.

Counties: Grays Harbor=1; King=11; Pierce=14; Whatcom=1 Yakima=8.

First-egg dates: Earliest 28 March (Julian day 87); latest 17 June (Julian day 168).

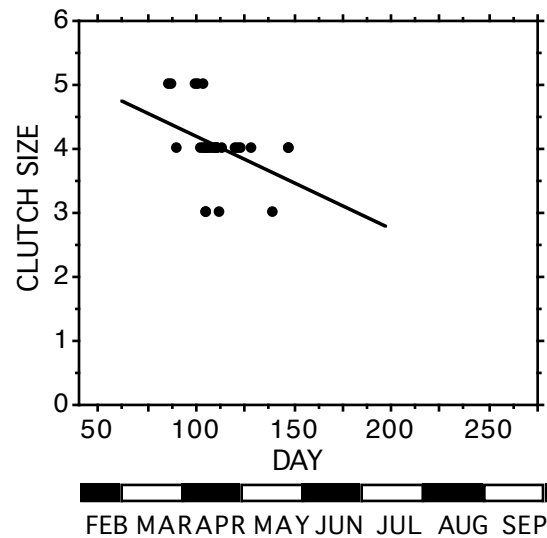


The median date for first eggs is 21 April (Julian day 111). The long nesting season, spanning 81 days, and the right skew in the

distribution of first-egg dates suggest that second broods occur.

Clutch size: 29 usable records. Mean 4.0 eggs. Distribution: 3 eggs (N=4), 4 eggs (N=20), 5 eggs (N=5).

Season and clutch size: Clutch size decreases by 1.2 eggs over the 81-day season of nest initiation ($Y = 5.67 - 0.01X$; $r^2=0.15$; $p=0.036$).



Western Scrub-Jay, *Aphelocoma californica*

Recorded to breed in Washington, but no records in our files.

Clark's Nutcracker, *Nucifraga columbiana*

2 records:

Burke Museum card:

Spokane County, nest with 4 eggs,
extrapolated first-egg date 5 March 1958
(Julian day 64).

Collected clutch:

WSU 61-44: 3-egg set, Spokane County,
extrapolated first-egg date 12 March
1953 (Julian day 71).

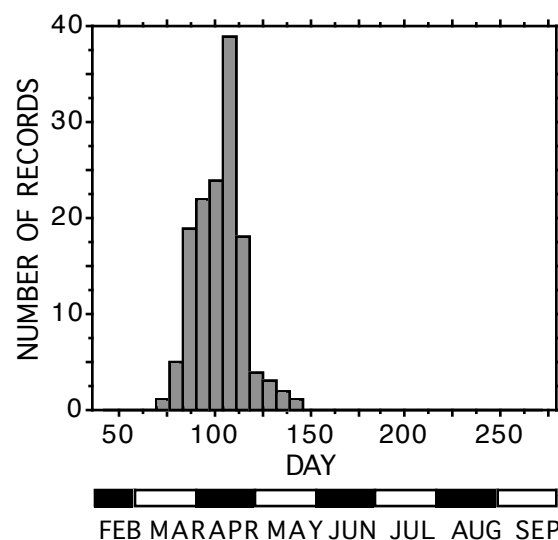
Black-billed Magpie, *Pica pica*

Records: 138. Burke Museum nest record
cards=65 (class cards=23); egg sets=52;
field notes=21.

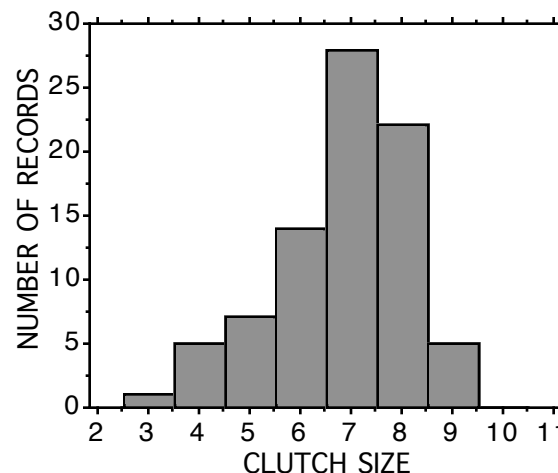
Counties: Adams=2; Benton=13;
Douglas=3; Franklin=1; Grant=59;
Kittitas=4; Lincoln=2; Walla Walla=2;
Whitman=24; Yakima=28.

First-egg dates: Earliest 17 March (Julian
day 76); latest 21 May (Julian day 141). All
records are for eastern Washington.
Laying dates for Grant County in the
Columbia basin are about two weeks later
(median date 19 April, Julian day 109) than
those for Whitman Co. in southeastern
Washington (median date 8 April, Julian day
98), or for Benton (1 April, Julian day 91) or
Yakima (4 April Julian day 94) counties
($p=0.0001$). The Grant County records
come from the region of the Winchester
Wasteway in the Columbia Basin in the
1980's, at a time before this region was
extensively converted to agriculture. In the
1970's and 80's, and presumably earlier, this
desert region was swept by cold winds in
early spring that delayed nesting in Red-
winged Blackbirds and other species by
several weeks (see Ewald and Rohwer
1982). The persistent down-slope winds
from the Cascade Mountains that once
characterized spring in this region have
largely stopped in the 1990's, presumable

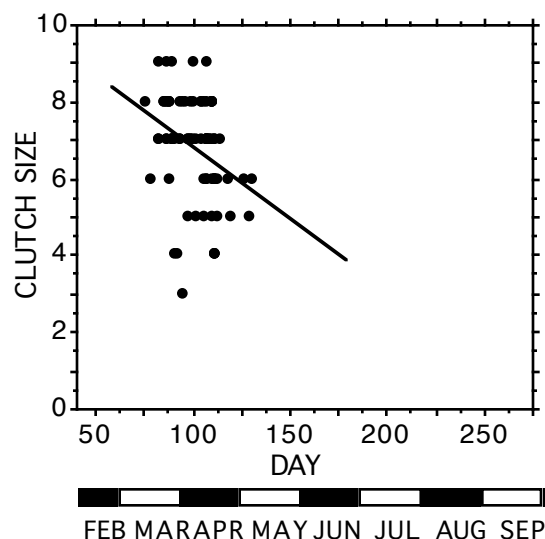
because of the cooling effect of agriculture.
Thus nesting should now be earlier in this
region of Grant County.



Clutch size: 82 usable records. Mean 6.8
eggs.



Season and clutch size: Clutch size decreases by 2.5 eggs over the 65-day season of nest initiation ($Y = 10.69 - 0.04X$; $r^2=0.116$; $p=0.002$).



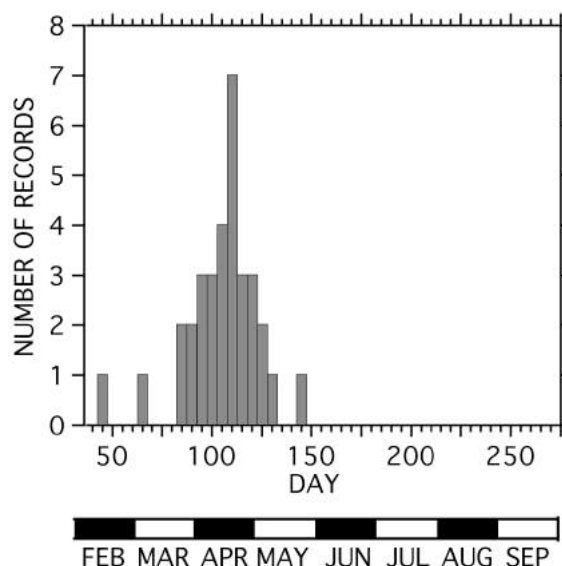
American/Northwestern Crow, *Corvus brachyrhynchos/caurinus*

We treat these species together because they are not distinguishable in the field, and are unlikely to represent biological species (Johnston, 1961).

Records: 33. Burke Museum nest record cards=7 (class cards=4); egg sets=22; field notes=4.

Counties: Benton=2; Douglas=1; Grays Harbor=1, King=10; Mason=1; Pacific=1; Pierce=9; San Juan=1; Walla Walla=1; Whatcom=1; Whitman=1; Yakima=4.

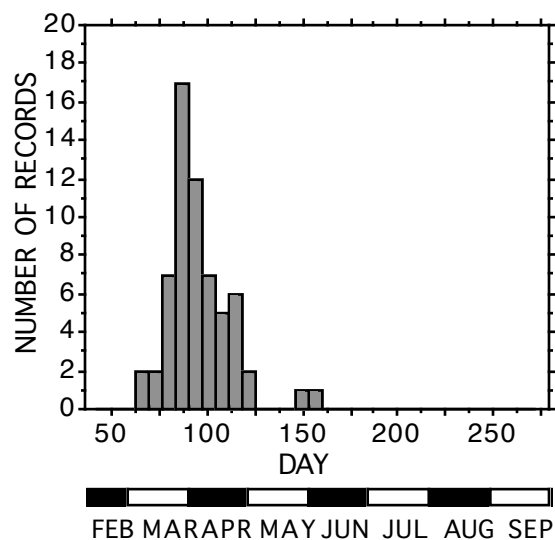
First-egg dates: Earliest 12 February (Julian day 43); latest 27 May (Julian day 147). The distribution of first-egg dates is not skewed to the right, suggesting that there is little reneesting after failures. The two very early records are for crows nesting in urban Seattle, and may represent first-egg dates that were advanced by the supplemental food from human refuse. Apart from these two early records, there was no difference in the onset of laying for crows from eastern and western Washington.



Clutch size: 26 usable records. Mean 5.1 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=2), 5 eggs (N=15), 6 eggs (N=6). Clutch sizes were similar in eastern and western Washington.

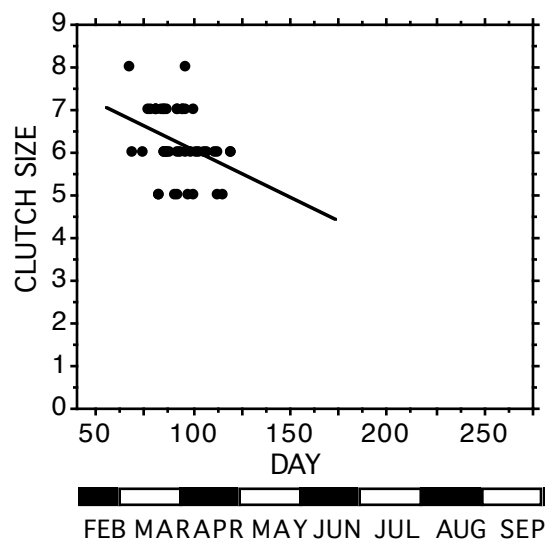
Season and clutch size: Clutch size did not change significantly with season.

First-egg dates: Earliest 9 March (Julian day 68); latest 8 June (Julian day 159).



Clutch size: 44 usable records. Mean 6.3 eggs. Distribution: 5 eggs (N=8), 6 eggs (N=19), 7 eggs (N=15), 8 eggs (N=2).

Season and clutch size: Clutch size decreases by 2.1 eggs over the 91-day season of nest initiation ($Y = 8.4 - 0.02X$; $r^2=0.128$; $p=0.017$).



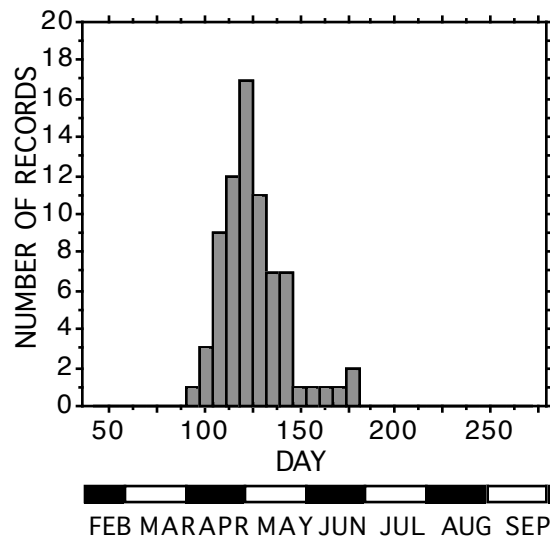
PARIDAE

Black-capped Chickadee, *Poecile atricapillus*

Records: 73. Burke Museum nest record cards=32 (class cards=12); egg sets=35; field notes=6.

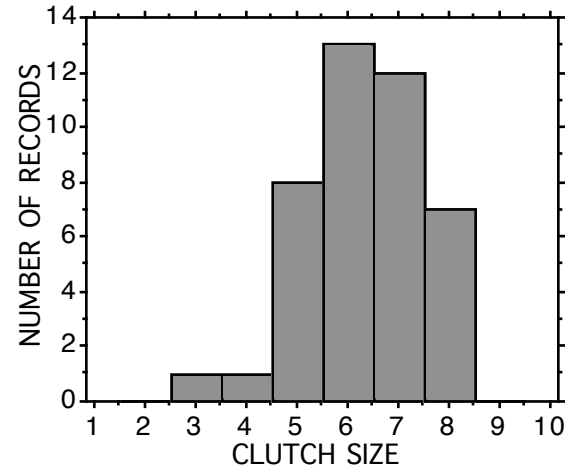
Counties: Grays Harbor=2; Island=1; King=41; Mason=1; Pacific=1; Pierce=10; Spokane=4; Stevens=1; Thurston=1; Walla Walla=1; Whatcom=3; Whitman=4; Yakima=3.

First-egg dates: Earliest 7 April (Julian day 97); latest 29 June (Julian day 180).

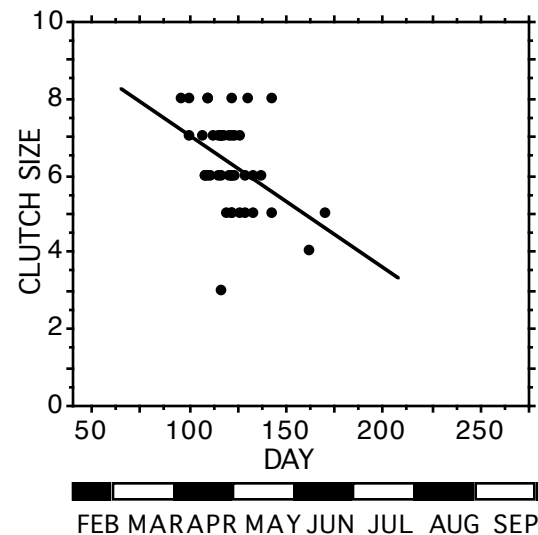


85% of first-egg dates are concentrated in a six week period of April and May. The few June nestings suggest that second broods are infrequent.

Clutch size: 42 usable records. Mean 6.31 eggs.



Season and clutch size: Clutch size decreases by 2.9 eggs over the 83-day season of nest initiation ($Y = 10.6 - 0.04X$; $r^2=0.18$; $p=0.0046$).



Mountain Chickadee, *Poecile gambeli*

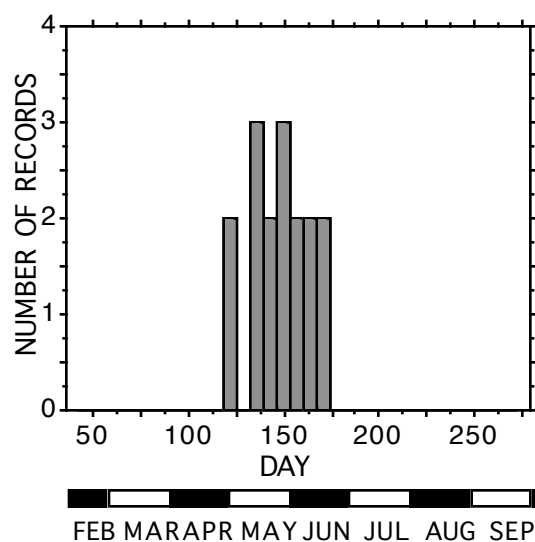
Records: 16. Burke Museum nest record cards=12; egg sets=4.

Counties: Chelan=2; Kittitas=3; Okanogan=1; Spokane=1; Yakima=9.

First-egg dates: Earliest 3 May (Julian day 123); latest 17 June (Julian day 168). First-egg dates span 7 weeks, with a median of 28 May (Julian day 148). All records are from eastern Washington.

Clutch size: 4 usable records. Mean 6.5 eggs. Distribution: 6 eggs (N=3), 8 eggs (N=1).

Season and clutch size: Not evaluated because there were just 4 usable records.



Boreal Chickadee, *Poecile hudsonicus*

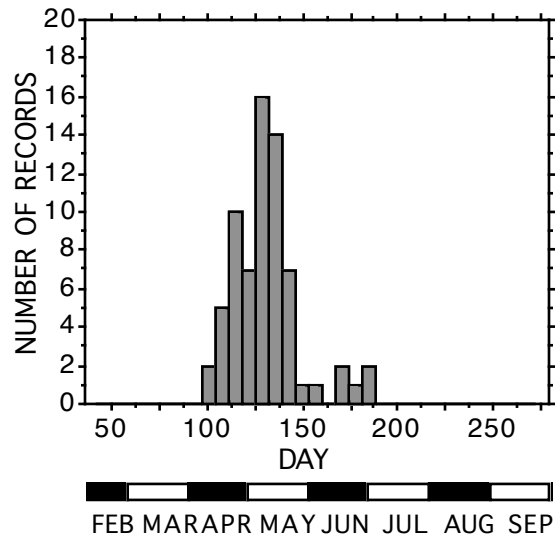
Recorded to breed in Washington, but no records in our files.

Chestnut-backed Chickadee, *Poecile rufescens*

Records: 68. Burke Museum nest record cards=34 (class cards=2); egg sets=33; field notes=1.

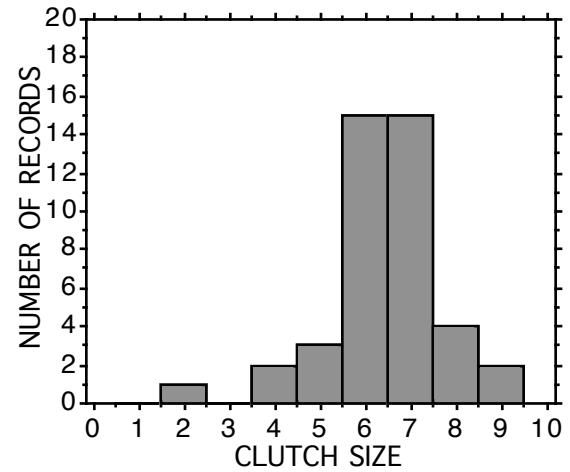
Counties: Clallam=1; Grays Harbor=1; Island=11; King=4; Pacific=9; Pierce=35; San Juan=2; Skamania=4; Whatcom=1.

First-egg dates: Earliest 8 April (Julian day 98); latest 4 July (Julian day 185).

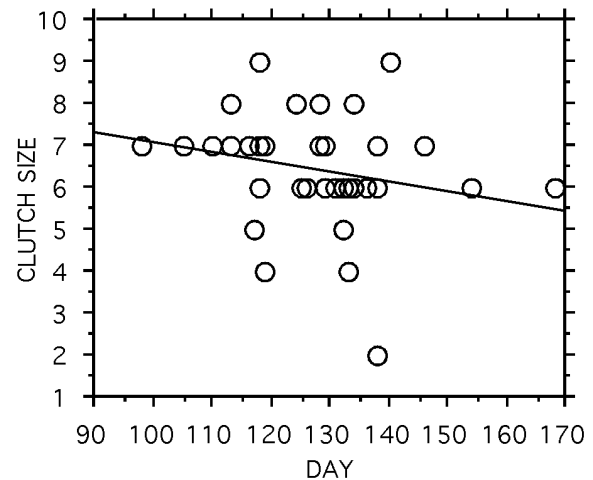


81% of first-egg dates fall within a 36-day period of April and May. The few late records for June and July suggest that second broods are infrequent but do occur.

Clutch size: 42 usable records. Mean 6.4 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.051$).



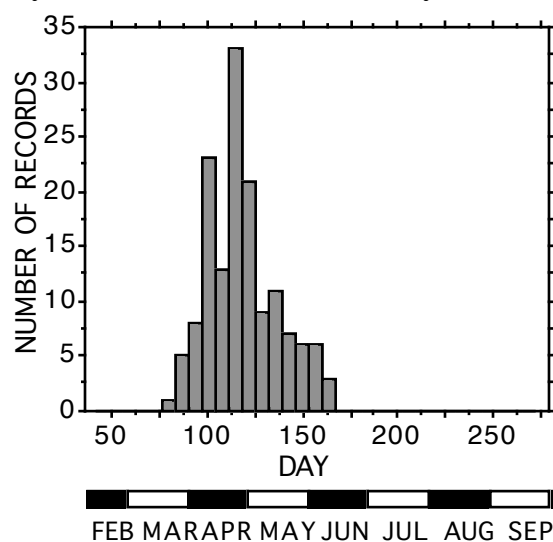
AEGITHALIDAE

Bushtit, *Psaltriparus minimus*

Records: 146. Burke Museum nest record cards=104 (class cards=93); egg sets=33; field notes=9.

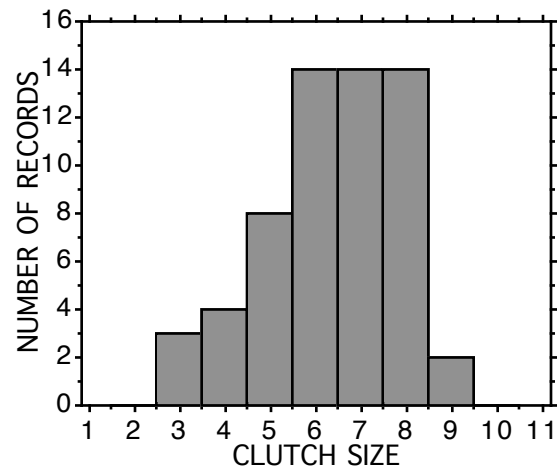
Counties: King=120; Kitsap=1; Pacific=1; Pierce=24.

First-egg dates: Earliest 23 March (Julian day 82); latest 15 June (Julian day 166).

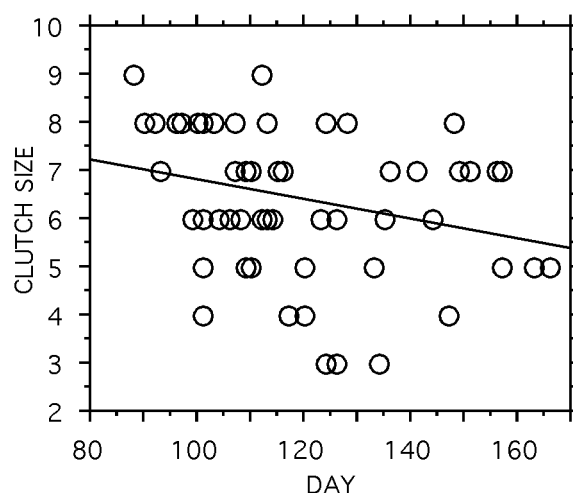


68% of records fall between 6 April and 6 May (median 26 April, Julian day 116), but late nesting could be seriously under-represented because so many cards come from the spring quarter Ornithology class. All records are for low elevations in western Washington, although Bushtits also breed in the Yakima Valley of eastern Washington.

Clutch size: 59 usable records. Mean 6.4 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.079$).



Cowbird parasitism: Three of 92 nests examined during the egg stage contained single Brown-headed Cowbird eggs; one is a Burke Museum Ornithology class card from 1977, and two are egg sets (PSM 15664 from 1980; PSM 15681 from 1981).

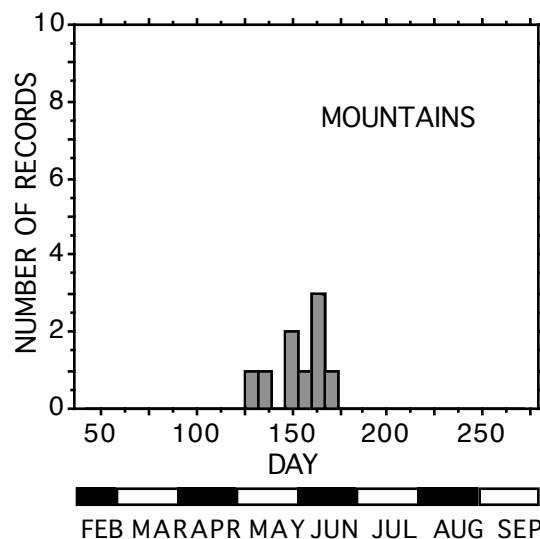
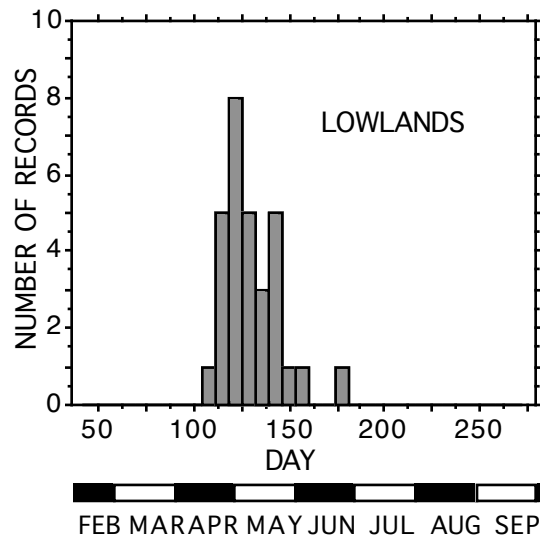
SITTIDAE

Red-breasted Nuthatch, *Sitta canadensis*

Records: 39. Burke Museum nest record cards=16; egg sets=23.

Counties: Chelan=5; Grays Harbor=1; King=1; Kittitas=2; Okanogan=1; Pierce=20; Skamania=1; Spokane=6; Yakima=2.

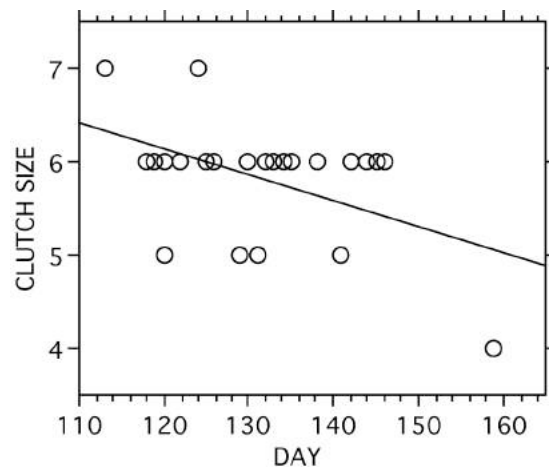
First-egg dates: Earliest 19 April (Julian day 109); latest 25 June (Julian day 176).



First-egg dates are a month earlier for areas below 2000' (N=30, median date 6 May, Julian day 126) than for elevations above 2,000' in the Olympics and Cascade Mountains (N=9, median date 5 June, Julian day 156). This difference is highly significant (Mann-Whitney test, $P < 0.001$).

Clutch size: 23 usable records. Mean 5.8 eggs. Distribution: 4 eggs (N=1), 5 eggs (N=4), 6 eggs (N=16), 7 eggs (N=2).

Season and clutch size: Clutch size declines by 1.4 eggs over the 51-day season of nest initiation covered by this regression ($P = 0.02$). This state-wide regression is unaffected by elevation because all but one of the clutch-size records are for low elevation sites.



White-breasted Nuthatch, *Sitta carolinensis*

Recorded to breed in Washington, but no records in our files.

Pygmy Nuthatch, *Sitta pygmaea*

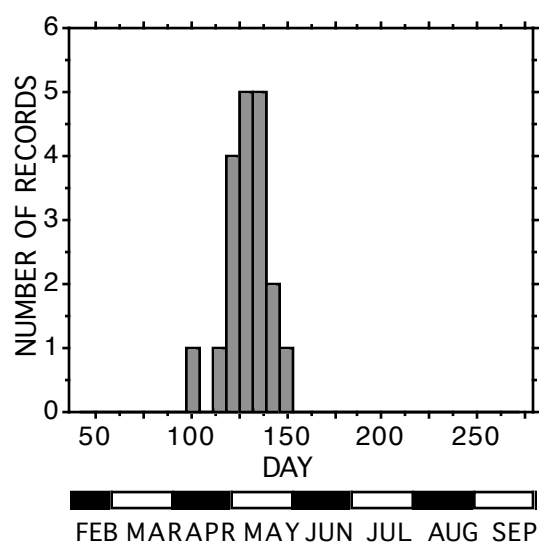
Records: 19. Burke Museum nest record cards=11; egg sets=4; field notes=4.

Counties: Kittitas=1; Spokane=10; Whitman=5; Yakima=3.

First-egg dates: Earliest 14 April (Julian day 104); latest 2 June (Julian day 153). First-egg dates span 8 weeks. All records are for eastern Washington.

Clutch size: 5 usable records. Mean 6.8 eggs. Distribution: 6 eggs (N=2), 7 eggs (N=2), 8 eggs (N=1).

Season and clutch size: Not evaluated because there were just 5 usable records.



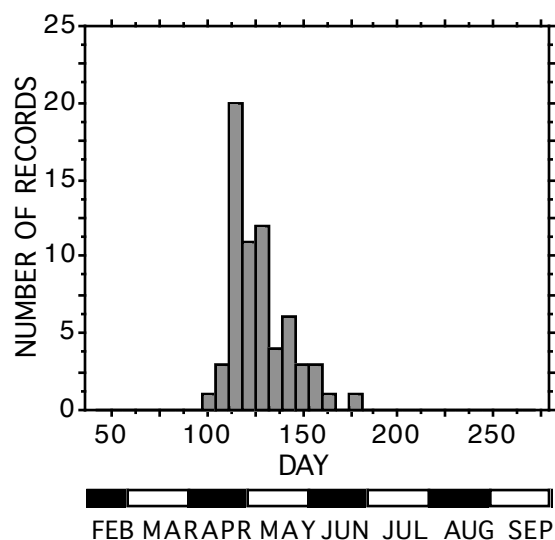
CERTHIIDAE

Brown Creeper, *Certhia americana*

Records: 65. Burke Museum nest record cards=10; egg sets=55.

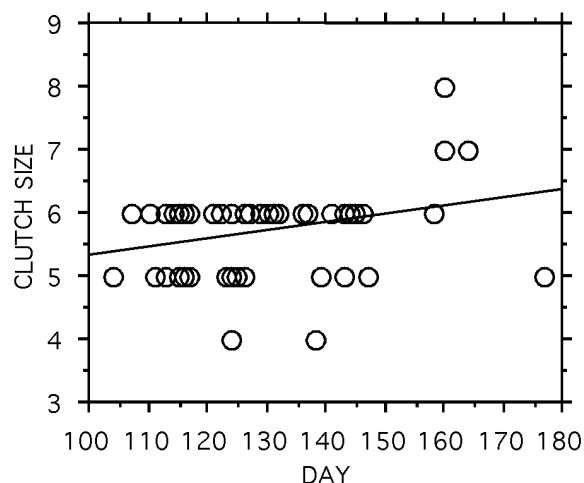
Counties: Island=1; Kitsap=1; Pend Oreille=1; Pierce=60; Skamania=1; Snohomish=1.

First-egg dates: Earliest 14 April (Julian day 104); latest 26 June (Julian day 177). 85% of records occur during a 36-day season, but the strong right skew suggests that some pairs raise second broods.



Clutch size: 59 usable records. Mean 5.7 eggs. Distribution: 4 eggs (N=2); 5 eggs (N=18), 6 eggs (N=36), 7 eggs (N=2), 8 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.085$).



TROGLODYTIDAE

Rock Wren, *Salpinctes obsoletus*

4 records:

Burke Museum cards:

Spokane County, 5 nestlings,
extrapolated first-egg date 23 May 1974
(Julian day 143).

Whitman County, 5 nestlings,
extrapolated first-egg date 15 May 1959
(Julian day 135).

Collected clutches:

PSM 15731: 7-egg set, Benton County,
extrapolated first-egg date 8 May 1927
(Julian day 128).

PSM (eggs missing): Data slip for an 8-
egg set collected by D. E. Brown,
Douglas County, extrapolated first-egg
date 29 May 1908 (Julian day 149).

Canyon Wren, *Catherpes mexicanus*

7 records:

Burke Museum cards:

Douglas County, nest with 4 young,
extrapolated first-egg date 29 April 1981
(Julian day 119).

Spokane County, no brood data,
extrapolated first-egg date 27 May 1962
(Julian day 147).

Spokane County, no brood data,
extrapolated first-egg date 27 May 1962
(Julian day 147).

Grant County, nest with 3 young,
extrapolated first-egg date 11 June 1963
(Julian day 162).

Collected clutches:

PSM 15732: 6-egg set, Yakima county,
extrapolated first-egg date 7 April 1928
(Julian day 97).

WFVZ 7022: 6-egg set, Yakima county,
extrapolated first-egg date 20 April 1940
(Julian day 110).

WFVZ 102952: 6-egg set, Yakima
county, extrapolated first-egg date 8
April 1941 (Julian day 98).

Bewick's Wren, *Thryomanes bewickii*

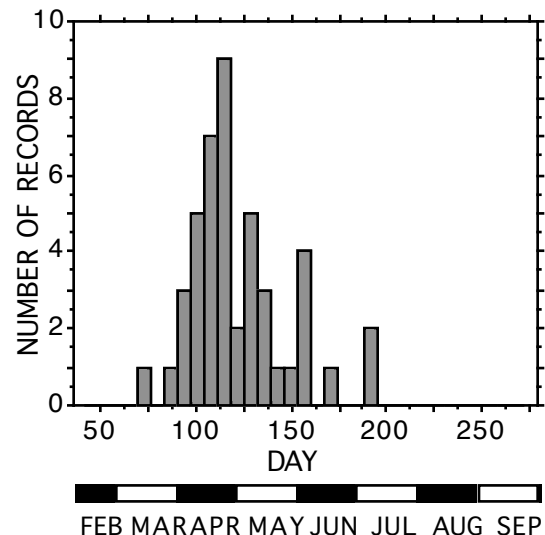
Records: 45. Burke Museum nest record
cards=24 (class cards=4); egg sets=18; field
notes=3.

Counties: King=22; Kitsap=1; Pacific=8;
Pierce=8; Walla Walla=1; Whatcom=4;
Yakima=1.

First-egg dates: Earliest 11 March (Julian
day 70); latest 12 July (Julian day 193).
First-egg dates span 123 days, with a median
date of 25 April (Julian day 115). The long
season and the right skew in the distribution
suggest that second broods are common.

Clutch size: 23 usable records. Mean 4.7
eggs. Distribution: 3 eggs (N=2), 4 eggs
(N=6), 5 eggs (N=11), 6 eggs (N=4).

Season and clutch size: Clutch size did not
change significantly with season.



House Wren, *Troglodytes aedon*

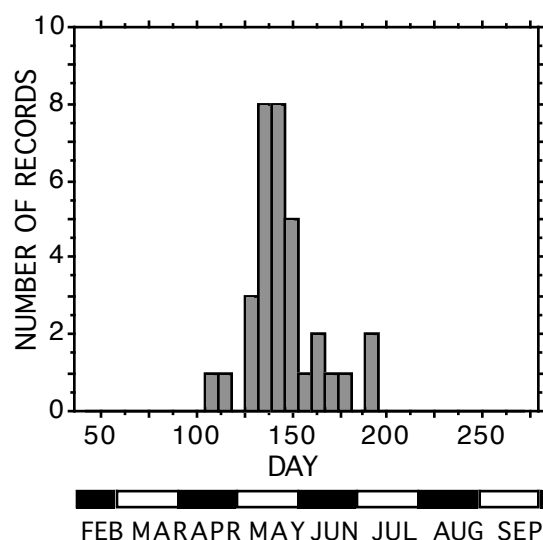
Records: 33. Burke Museum nest record cards=14; egg sets=8; field notes=11.

Counties: Kittitas=1; Okanogan=2; Pierce=4; Spokane=12; Whitman=11; Yakima=3.

First-egg dates: Earliest 21 April (Julian day 111); latest 13 July (Julian day 194). While 33 records is a small sample, there is a hint of a secondary peak in late June and July, which might suggest second broods, especially because birders are less active in eastern Washington in late summer.

Clutch size: 12 usable records. Mean 6.7 eggs. Distribution: 5 eggs (N=1), 6 eggs (N=4), 7 eggs (N=4), 8 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Winter Wren, *Troglodytes troglodytes*

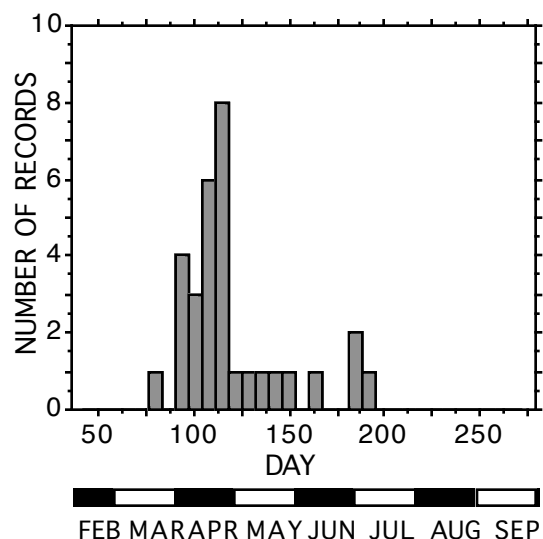
Records: 32. Burke Museum nest record cards=9; egg sets=21; field notes=2.

Counties: Chelan=2; Grays Harbor=5; King=7; Pacific=3; Pierce=13; Spokane=1; Whatcom=1.

First-egg dates: Earliest 19 March (Julian day 78); latest 11 July (Julian day 192). Most first-egg dates fall in April, and the median is 22 April (Julian day 112). However, laying continues into mid July, suggesting multiple broods.

Clutch size: 23 usable records. Mean 5.2 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=4), 5 eggs (N=8), 6 eggs (N=10).

Season and clutch size: Clutch size did not change significantly with season.

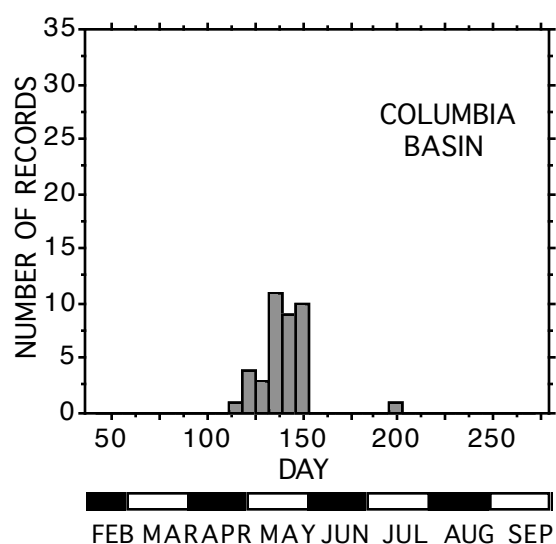
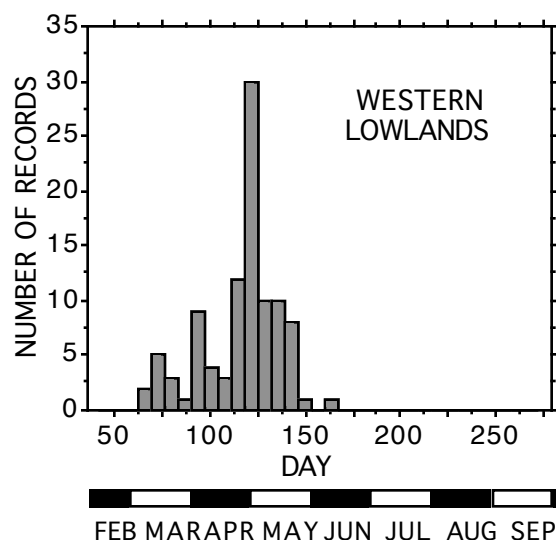


Marsh Wren, *Cistothorus palustris*

Records: 140. Burke Museum nest record cards=105 (class cards=33); egg sets=2.

Counties: Adams=1; Grant=38; Grays Harbor=1; King=31; Pierce=24; Skagit=42; Snohomish=1; Spokane=2.

First-egg dates: N=140. Earliest 8 March (Julian day 67); latest 20 July (Julian day 201).



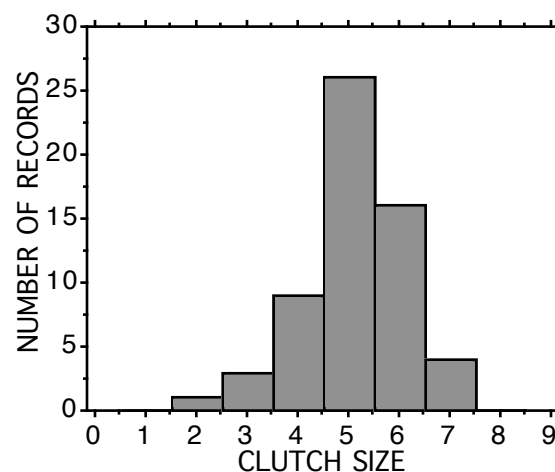
Nesting starts much earlier in western Washington (N=99, median date 30 April, Julian day 120) than in the Columbia Basin (N=39, median date 19 May, Julian day

139). This difference is highly significant (Mann-Whitney test, $P < 0.001$). The season is also longer in the west (14 weeks) than in the east (6 weeks).

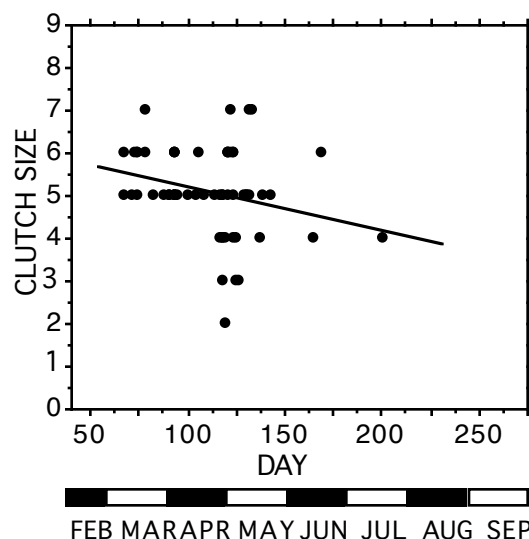
The left skew in the distribution of first-egg dates for both western Washington and the Columbia Basin is puzzling.

For western Washington the exclusion of the 24 records from Pierce County eliminates the left skew in the distribution and creates a strong right skew. All of these Pierce County records were egg sets taken early in the nesting season (median 1 April, Julian day 91); they were collected from 1897-1933.

Clutch size: 59 usable records. Mean 5.0 eggs.



Season and clutch size: Clutch size declines by 1.41 eggs over the 134-day period of nest initiation ($Y = 6.27 - 0.01X$; $r^2 = 0.072$; $p = 0.040$).



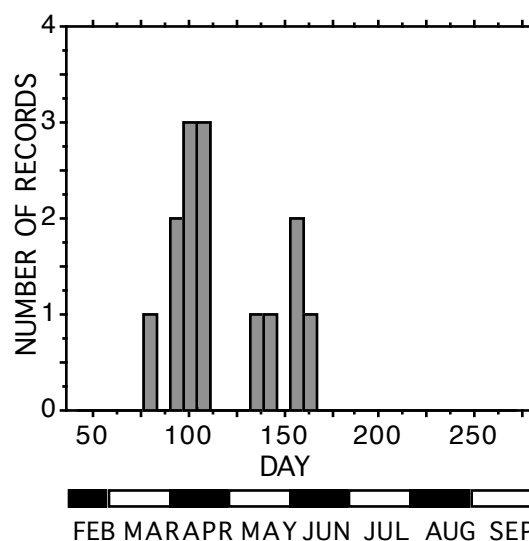
CINCLIDAE

American Dipper, *Cinclus mexicanus*

Records: 14. Burke Museum nest record cards=6; egg sets=8.

Counties: Chelan=4; King=1; Pierce=5; Walla Walla=1; Wahkiakum=1; Yakima=2.

First-egg dates: Earliest 24 March (Julian day 83); latest 14 June (Julian day 165). Although the sample is small, the two separate peaks in the distribution of first-egg dates, and the nearly two month separation of these peaks suggests that second broods are common.



Clutch size: 9 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=4), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.

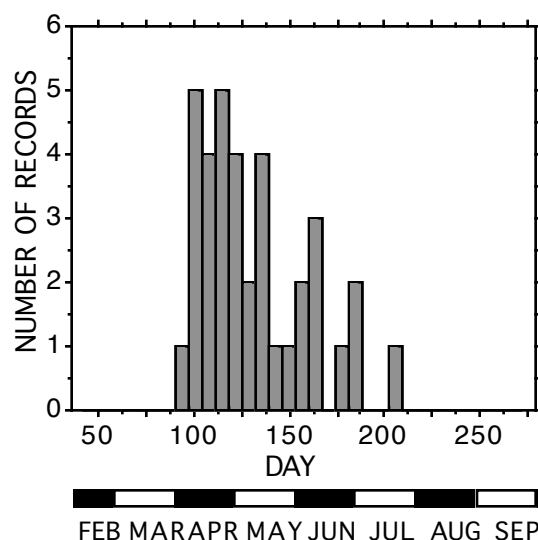
REGULIDAE

Golden-crowned Kinglet, *Regulus satrapa*

Records: 36. Burke Museum nest record cards=2; egg sets=30; field notes=4.

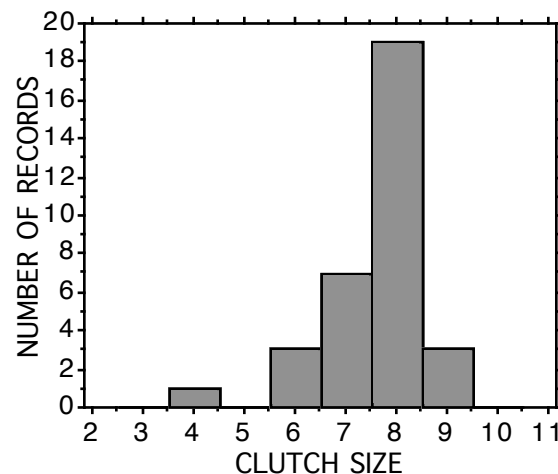
Counties: Grays Harbor=5; King=7; Pacific=1; Pierce=23.

First-egg dates: Earliest 4 April (Julian day 94); latest 24 July (Julian day 205).



All first-egg dates are for areas below 2,000' in western Washington. The long season of nest initiation (111 days) and strong right skew for the distribution suggest that two or more broods are attempted.

Clutch size: 33 usable records. Mean 7.6 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Parasitism: One Burke card reported a Brown-headed Cowbird on and around an active kinglet nest on two different days. This was early in the nest cycle, as the kinglet was building when the first observation was made; this nest failed. A second Burke card reported a kinglet feeding a newly fledged cowbird; no kinglet fledglings were seen.

Ruby-crowned Kinglet, *Regulus calendula*

4 records:

Burke Museum cards:

Ferry County, nest with young,
extrapolated first-egg date 25 May 1963
(Julian day 145).

Whitman County, nest with 6 eggs,
extrapolated first-egg date 26 May 1955
(Julian day 146).

Field notes:

Whitman County, nest with 4 young,
extrapolated first-egg date 30 May 1952
(Julian day 150).

Whitman County, nest with 6 eggs,
extrapolated first-egg date 6 June 1952
(Julian day 157).

TURDIDAE

Western Bluebird, *Sialia mexicana*

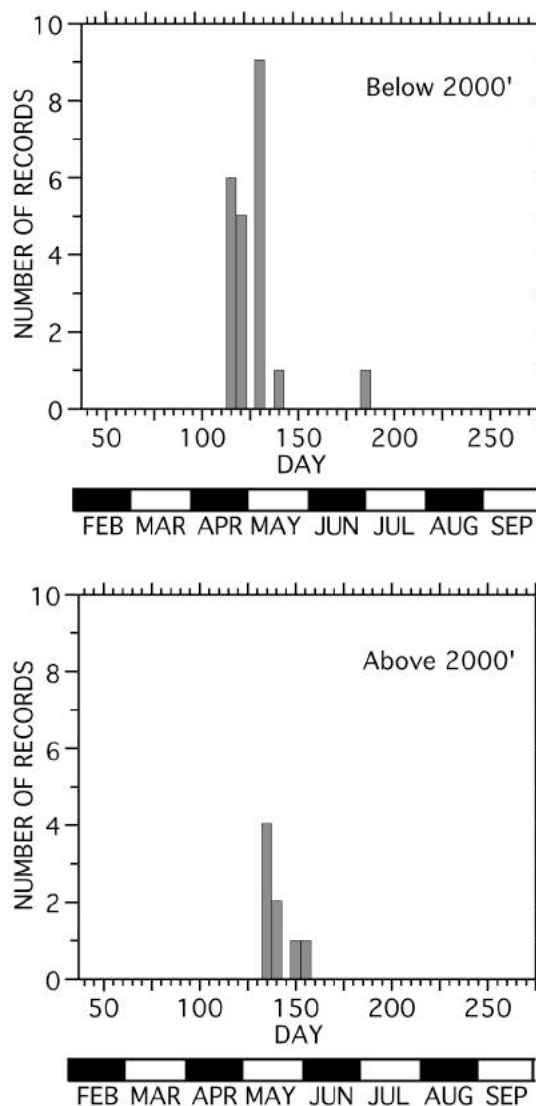
Records: 30. Burke Museum nest record cards=17 (class cards=3); egg sets=12; field notes=1.

Counties: Grays Harbor=1; King=1; Kittitas=2; Mason=1; Pierce=10; Spokane=8; Whatcom=1; Yakima=6.

First-egg dates: Earliest 21 April (Julian day 111); latest 7 July (Julian day 188). Nesting begins earlier below 2,000' (N=22, median 6 May, Julian day 126) than above 2000' (N=8, median 16 May, Julian day 136). First-egg dates are also later in eastern Washington (N=14, median 15 May, Julian day 135) than in western Washington (N=16, median 5 May, Julian day 125).

Clutch size: 13 usable records. Mean 5.9 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=8), 5 eggs (N=2).

Season and clutch size: For the 11 nests from areas below 2000' elevation, clutch size declines with season. The slope is the same as that for Mountain Bluebirds, but not significant ($Y = 8.3 - 0.02X$; $r^2 = 0.07$; $p = 0.43$).



Mountain Bluebird, *Sialia currucoides*

Records: 25. Burke Museum nest record cards=19 (class cards=2); egg sets=4; field notes=2.

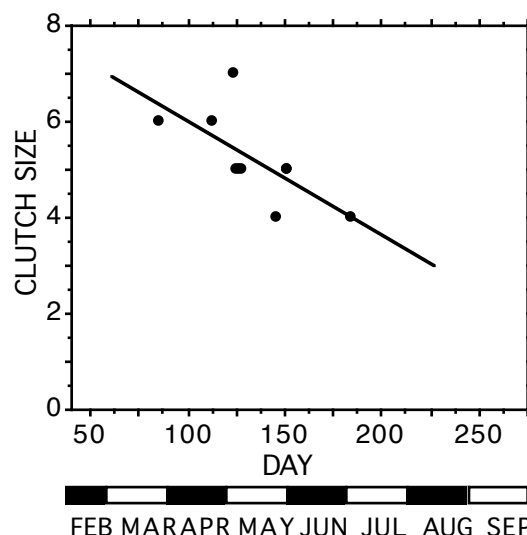
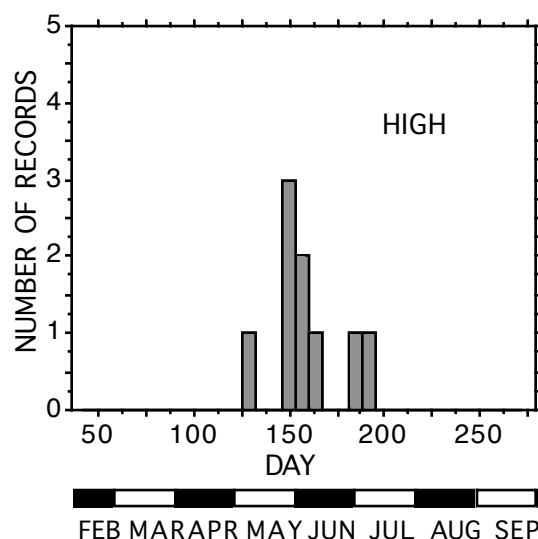
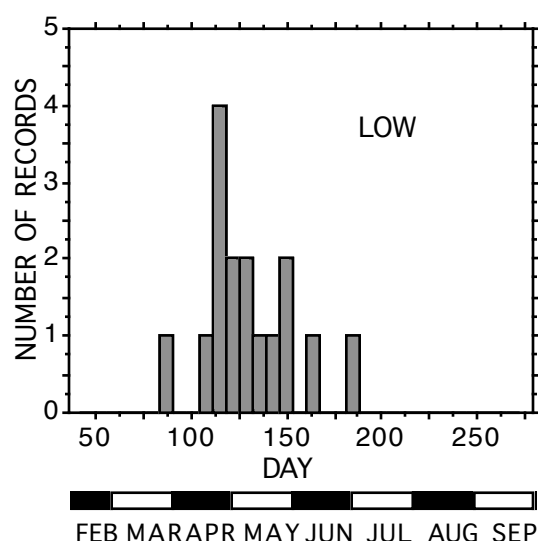
Counties: Ferry=1; Kittitas=5; Pierce=2; Skamania=1; Spokane=6; Stevens=2; Whitman=2; Yakima=6.

First-egg dates: Earliest 27 March (Julian day 86); latest 12 July (Julian day 193).

First-egg dates are earlier at elevations below 2,000' (N=16, median 5 May, Julian day 125) than at higher elevations (N=9, median 3 June, Julian day 154). This difference is highly significant (Mann-Whitney test, $p=0.004$).

Clutch size: 10 usable records. Mean 5.2 eggs. Distribution: 4 eggs (N=2), 5 eggs (N=5), 6 eggs (N=2), 7 eggs (N=1).

Season and clutch size: Clutch size declines by 2.6 eggs over the 107-day period of nest initiation ($Y = 8.4 - 0.02X$; $r^2=0.47$; $p=0.028$). All of these 10 records come from areas below 2000' elevation.



Townsend's Solitaire, *Myadestes townsendi*

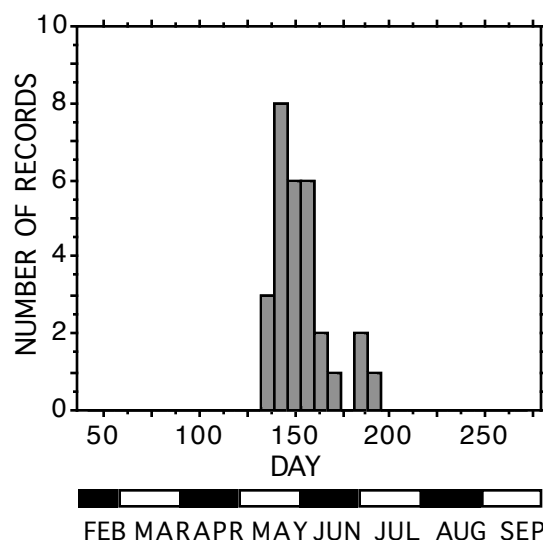
Records: 29. Burke Museum nest record cards=10; egg sets=19.

Counties: Chelan=3; Kittitas=10; Pend Oreille=1; Spokane=2; Stevens=2; Yakima=11.

First-egg dates: Earliest 13 May (Julian day 133); latest 10 July (Julian day 191). The 8-week span of first-egg dates and the small secondary peak in the distribution suggest that second broods are sometimes raised. .

Clutch size: 21 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=17), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Veery, *Catharus fuscescens*

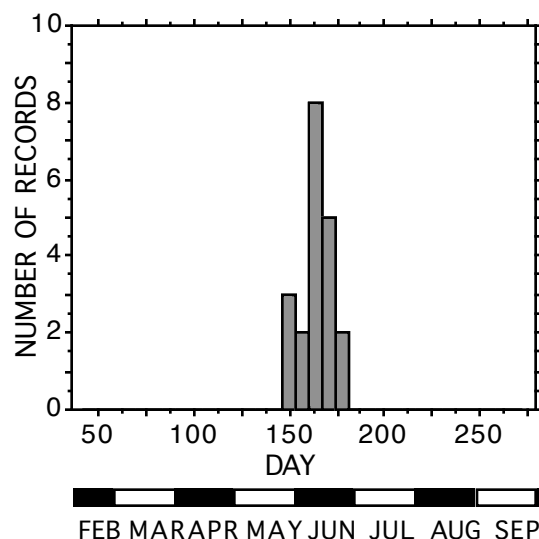
Records: 20. Burke Museum nest record cards=10; egg sets=4; field notes=6.

Counties: Chelan=2; Okanogan=1; Spokane=10; Whitman=6; Yakima=1.

First-egg dates: Earliest 28 May (Julian day 148); latest 29 June (Julian day 180). Although this sample is small, the absence of right skew in the distribution of first-egg dates suggests that second broods are not attempted and that reneesting after failure is rare.

Clutch size: 9 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=6), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



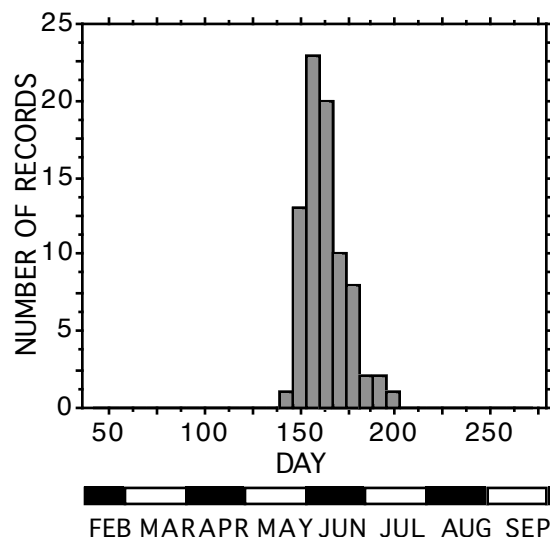
Parasitism: Of 14 nests with eggs 2 contained Brown-headed Cowbird eggs

Swainson's Thrush, *Catharus ustulatus*

Records: 80. Burke Museum nest record cards=18; egg sets=50; field notes=12.

Counties: Chelan=3; Columbia=1; King=18; Pacific=7; Pend Oreille=1; Pierce=25; Thurston=1; Whatcom=7; Whitman=2; Yakima=15.

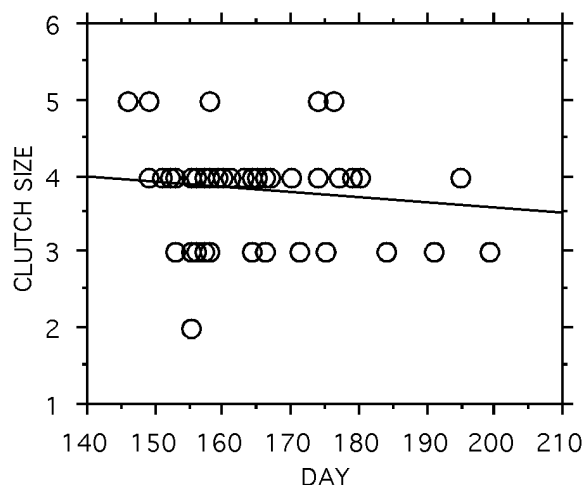
First-egg dates: Earliest 26 May (Julian day 146); latest 18 July (Julian day 199).



The limited right skew in the distribution of first-egg dates suggests limited renesting after failures. The limited right skew and short season of nest initiations suggest that second broods are not attempted.

Clutch size: 65 usable records. Mean 3.8 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=14), 4 eggs (N=45), 5 eggs (N=5).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.017$).



Parasitism: Of 74 nests observed with eggs, two nests from Pierce County in 1977 also contained Brown-headed Cowbird eggs.

Hermit Thrush, *Catharus guttatus*

3 records:

Burke Museum card:
King County, nest with 4 young,
extrapolated first-egg date 29 June 1961
(Julian day 180).

Collected clutch:

PSM 15919: 4-egg set, Jefferson
County, extrapolated first-egg date 6
June 1926 (Julian day 157).

King/Shaw notes:

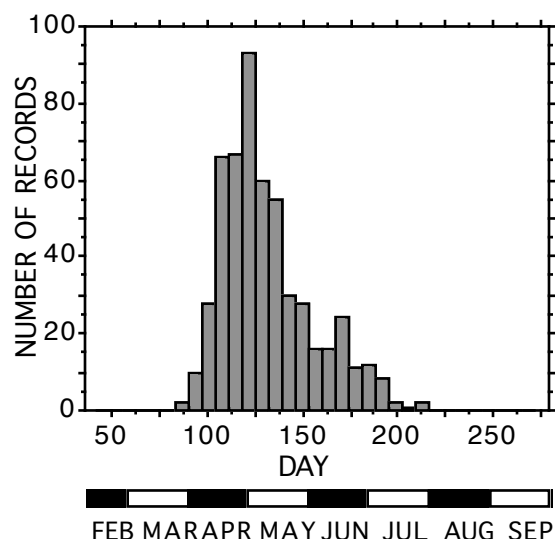
Whatcom County, nest with 3 young,
extrapolated first-egg date 1 July 1929
(Julian day 182).

American Robin, *Turdus migratorius*

Records: 531. Burke Museum nest record cards=380 (Class cards=143); egg sets=38; field notes=45; no source code=68.

Counties: Asotin=1; Benton=4; Chelan=4; Clallam=8; Douglas=7; Ferry=2; Grant=1; Island=10; King=202; Kitsap=5; Kittitas=8; Okanogan=2; Pacific=19; Pend Oreille=2; Pierce=31; San Juan=1; Skagit=6; Skamania=2; Snohomish=6; Spokane=105; Thurston=2; Walla Walla=2; Whatcom=43; Whitman=45; Yakima=13.

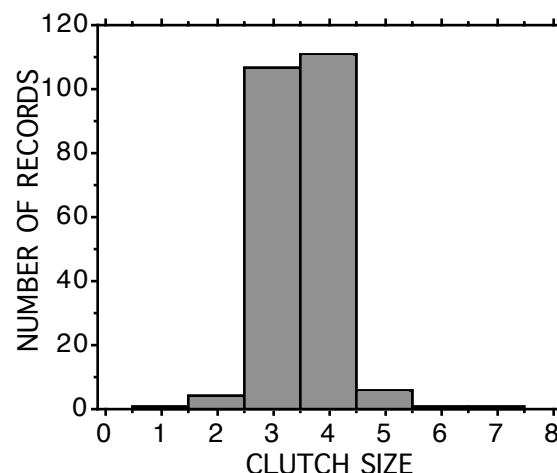
First-egg dates: Earliest 28 March (Julian day 87); latest 3 August (Julian day 215).



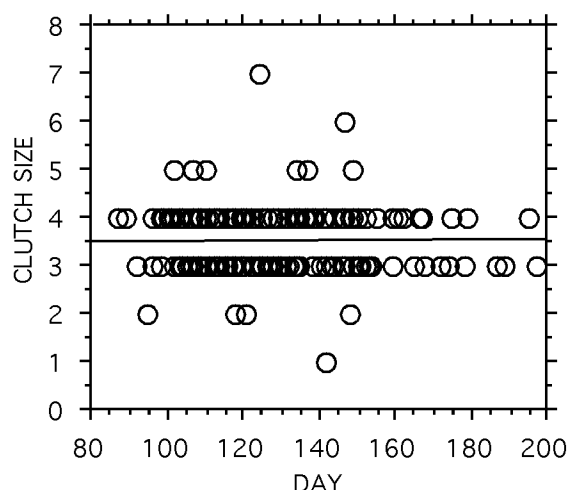
Over 70% of records fall between mid-April and mid-May (median 5 May, Julian day 125). However summer records are surely seriously under-represented because virtually all of the 143 class cards are for April and May, and because birders are more active in spring than mid summer. Thus the strong right skew in the distribution, and the secondary peak of laying in late June suggest that successful birds attempt second broods.

First-egg dates vary with geography and elevation. For eastern Washington (N=196), and for areas above 2,000' (N=109) first eggs are a few days later (both medians 8 May, Julian day 128) than for western Washington (N=335, median 4 May, Julian day 124)). However, robins, are such habitat generalists that separating records just by elevation fails to segregate high and low elevation birds. For example, they breed early in open country above 2,000' throughout eastern Washington. When the subset of high elevation records is restricted to the Olympic and Cascade Mountains, first-egg dates are later by more than 3 weeks (N=21; median 31 May, Julian day 151).

Clutch size: 231 usable records. Mean 3.5 eggs. The two large clutches of 6 and 7 eggs may signify laying by more than one female.



Season and clutch size: There was not even a hint of clutch size changing through the nesting season. The line was almost perfectly flat despite the large sample of nests.



Varied Thrush, *Ixoreus naevius*

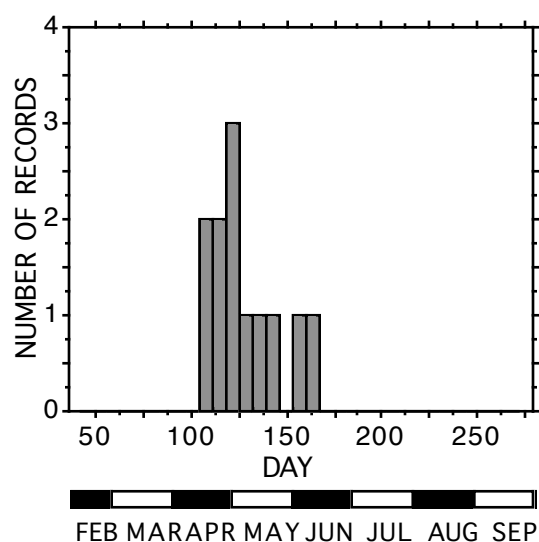
Records: 12. Burke Museum nest record cards=1; egg sets=10; field notes=1.

Counties: Clallam=1; Jefferson=1; Okanogan=1; Pierce=4; Whatcom=5.

First-egg dates: Earliest 15 April (Julian day 105); latest 11 June (Julian day 162). First-egg dates span a 9-week season. Little can be said with so few records for such a common bird.

Clutch size: 11 usable records. Mean 3.2 eggs. Distribution: 3 eggs (N=9), 4 eggs (N=2).

Season and clutch size: Clutch size did not change significantly with season.



MIMIDAE

Northern Mockingbird, *Mimus polyglottos*

Recorded to breed in Washington, but no records in our files.

Gray Catbird, *Dumetella carolinensis*

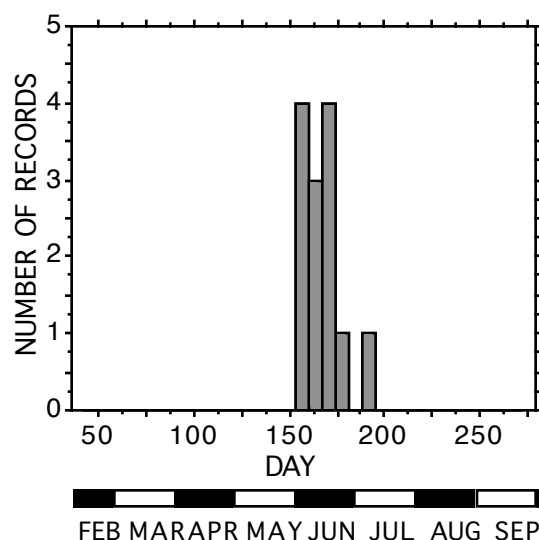
Records: 13. Burke Museum nest record cards=5; egg sets=4; field notes=4.

Counties: Chelan=2; Klickitat=1; Okanogan=1; Pend Oreille=1; Spokane=3; Whitman=5.

First-egg dates: Earliest 4 June (Julian day 155); latest 10 July (Julian day 191). First-egg dates are late and span a short 6-week season.

Clutch size: 4 usable records. Mean 2.9 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=1), 5 eggs (N=2).

Season and clutch size: Not evaluated because there were just 4 usable records.



Sage Thrasher, *Oreoscoptes montanus*

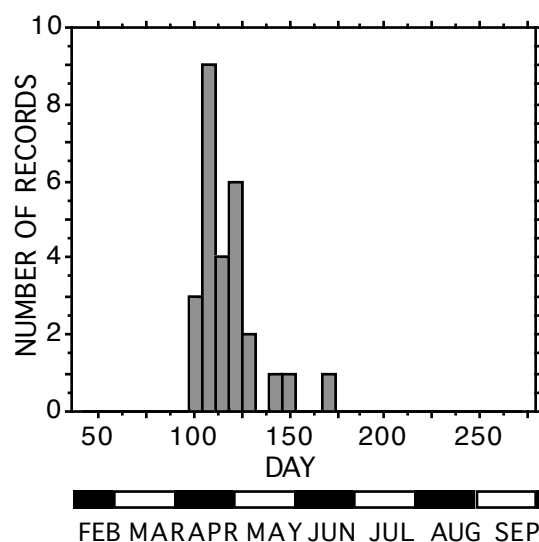
Records: 27. Burke Museum nest record cards=2 (class cards=1); egg sets=25.

Counties: Benton=12; Douglas=2; Kittitas=8; Yakima=5.

First-egg dates: Earliest 8 April (Julian day 98); latest 17 June (Julian day 168). First-egg dates span 10 weeks. The right skew in the distribution, and the three late May and June records suggest that some pairs raise second broods.

Clutch size: 25 usable records. Mean 4.5 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=11), 5 eggs (N=13).

Season and clutch size: Clutch size did not change significantly with season.



MOTACILLIDAE

American Pipit, *Anthus rubescens*

5 records:

Collected clutches:

PSM 16033: 4-egg set, Pierce County, extrapolated first-egg date 24 June 1935 (Julian day 175).

PSM 16034: 2-egg set, Pierce County, extrapolated first-egg date 2 July 1935 (Julian day 183).

UWBM (eggs missing): 5-egg set, Chelan County, extrapolated first-egg date 1 July 1907 (Julian day 182,).

WFVZ 67303: 6-egg set, Skamania County, extrapolated first-egg date 28 May 1957 (Julian day 148).

Shaw notes:

Whatcom County, brood, extrapolated first-egg date 18 June 1925 (Julian day 169).

LANIIDAE

Loggerhead Shrike, *Lanius ludovicianus*

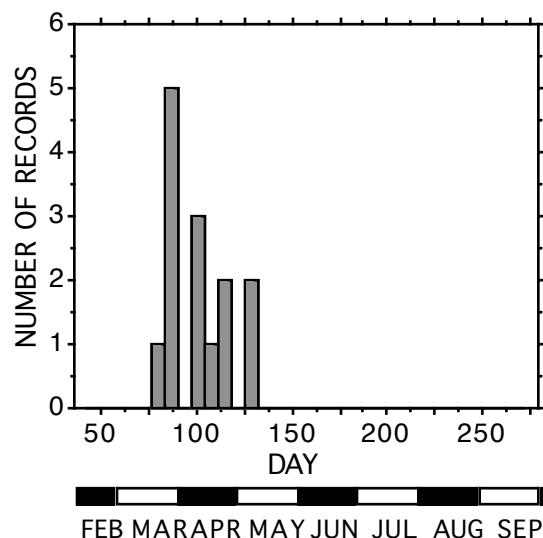
Records: 14. Burke Museum nest record cards=3; egg sets=11.

Counties: Benton=6; Douglas=1; Grant=3; Kittitas=2; Yakima=2.

First-egg dates: Earliest 22 March (Julian day 81); latest 11 May (Julian day 131). First-egg dates span an 8-week season.

Clutch size: 14 usable records. Mean 6.5 eggs. Distribution: 5 eggs (N=2), 6 eggs (N=2), 7 eggs (N=7).

Season and clutch size: Clutch size did not change significantly with season.



BOMBYCILLIDAE

Bohemian Waxwing, *Bombycilla garrulus*

Recorded to breed in Washington, but no records in our files.

Cedar Waxwing, *Bombycilla cedrorum*

Records: 43. Burke Museum nest record cards=21; egg sets=19; field notes=3.

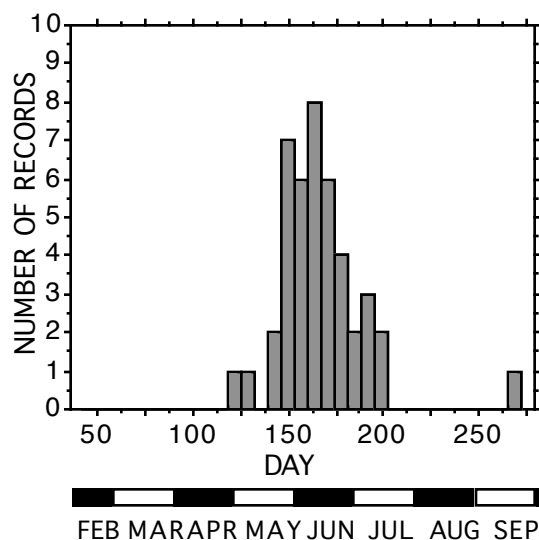
Counties: Douglas=5; King=7; Pacific=3; Pend Oreille=1; Pierce=17; Spokane=5; Thurston=1; Whatcom=4.

First-egg dates: Earliest 2 May (Julian day 122); latest 20 July (Julian day 201) except for an odd record for 29 September (Julian day 272). First-egg dates cover a relatively long nesting season of 12 weeks, even without the very late record for the end of September. The right skew and long season suggest second broods.

Clutch size: 26 usable records. Mean 4.5 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=8), 5 eggs (N=14), 6 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Two nests of 29 examined during the egg stage contained Brown-headed Cowbird eggs, both from Douglas County in 1961.



STURNIDAE

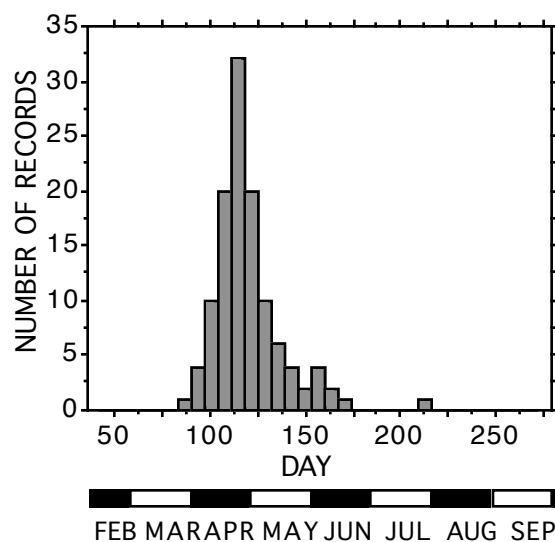
European Starling, *Sturnus vulgaris*

Records: 118. Burke Museum nest record cards=111 (class cards=52); egg sets=7.

Counties: Adams=1; Douglas=4; Grant=1; Island=19; King=44; Klickitat=1; Okanogan=1; Pacific=1; Pend Oreille=1; Pierce=3; San Juan=1; Skagit=1; Snohomish=9; Spokane=9; Whatcom=14; Whitman=1; Yakima=7.

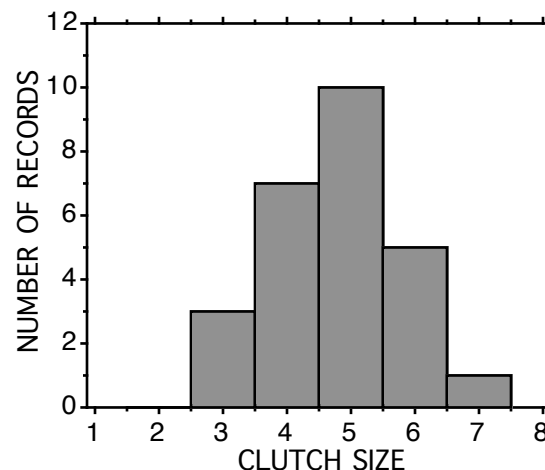
Distribution by decades: No starling nests were reported from Washington before 1958. There appears to have been a flurry of interest in this species as it invaded Washington. In eastern Washington 69% of the 26 records are from the 1960's, while in the western Washington 54% of the 92 records are from the 1970's.

First-egg dates: Earliest 28 March (Julian day 87); latest 3 August (Julian day 215).

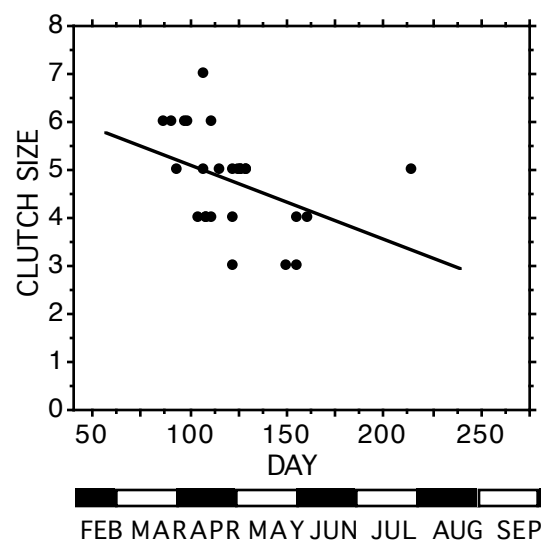


82% of the records fall within 40 days of the first, suggesting only a few second broods.

Clutch size: 26 usable records. Mean 4.8 eggs.



Season and clutch size: Clutch size decreases by 2.0 eggs over the 128-day season of nest initiation ($Y = 6.69 - 0.02X$; $r^2 = 0.172$; $p = 0.040$).



VIREONIDAE

Cassin's Vireo, *Vireo cassinii*

Records: 41. Burke Museum nest record cards=9; egg sets=26; field notes=6.

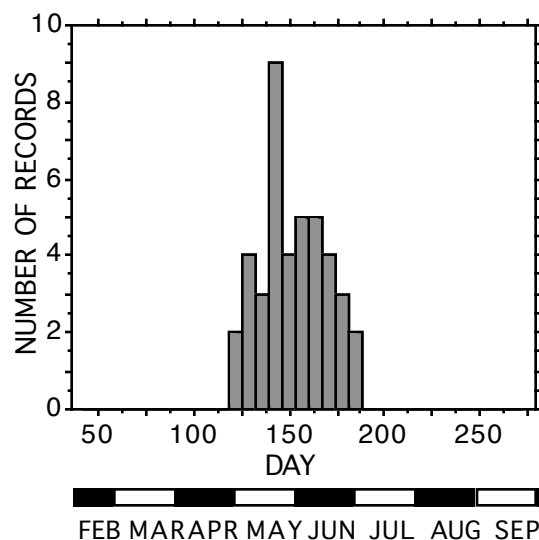
Counties: King=6; Pierce=25; Spokane=4; Stevens=1; Thurston=1; Whitman=3; Yakima=1.

First-egg dates: Earliest 29 April (Julian day 119); latest 6 July (Julian day 187). First-egg dates span a 68-day season.

Clutch size: 29 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=5), 4 eggs (N=17), 5 eggs (N=6), 6 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of 33 nests containing eggs, two were parasitized by Brown-headed Cowbirds, one in King County in 1962 with a single cowbird egg, and one in Spokane County in 1975 with two cowbird eggs.



Hutton's Vireo, *Vireo huttoni*

4 records, all collected clutches:

UWBM 5585: 4-egg set, King County, extrapolated first-egg date 17 June 1910 (Julian day 168).

UWBM 5432: 4-egg set, King County, extrapolated first-egg date 8 June 1911 (Julian day 159).

PSM (eggs missing): Data slip for a 4-egg set collected by J. V. Getty: King County, extrapolated first-egg date 24 May 1912 (Julian day 144).

PSM 16110: 3-egg set, Pierce County, extrapolated first-egg date 24 April 1920 (Julian day 114).

Warbling Vireo, *Vireo gilvus*

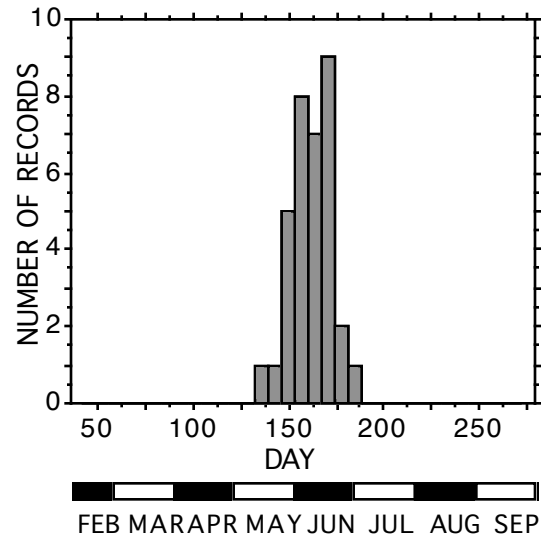
Records: 34. Burke Museum nest record cards=16; egg sets=15; field notes=3.

Counties: Chelan=4; Clallam=1; King=5; Kittitas=2; Pend Oreille=1; Pierce=7; Spokane=7; Whatcom=1; Whitman=4; Yakima=2.

First-egg dates: Earliest 14 May (Julian day 134); latest 4 July (Julian day 185). First-egg dates span 8 week; the lack of a right skew in the distribution suggests renesting after failure is infrequent.

Clutch size: 17 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=14), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



Red-eyed Vireo, *Vireo olivaceus*

4 records:

Burke Museum cards:

Pend Oreille County, 2 eggs,
extrapolated first-egg date 24 June 1963
(Julian day 175).

Spokane County, no data on contents,
extrapolated first-egg date 31 August
1962 (Julian day 243).

Collected clutch:

PSM 16123: 3-egg set, Thurston County,
extrapolated first-egg date 25 June 1950
(Julian day 176).

Field notes:

Whitman County, nest with 3 eggs,
extrapolated first-egg date 30 June 1952
(Julian day 181).

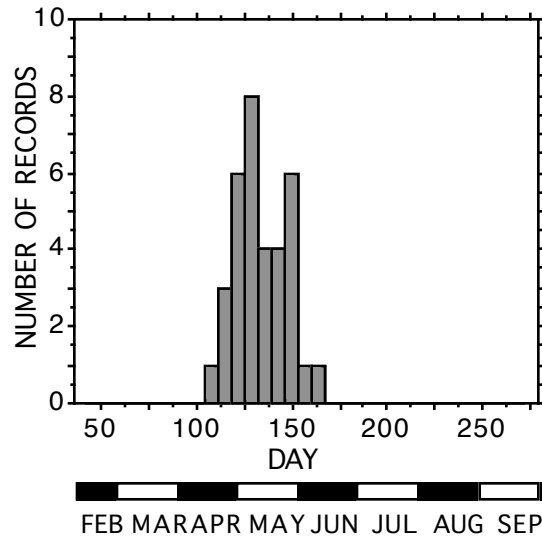
PARULIDAE

Orange-crowned Warbler, *Vermivora celata*

Records: 34. Burke Museum nest record cards=6; egg sets=23; field notes=5.

Counties: Clallam=1; Grays Harbor=4; King=7; Pierce=20; Stevens=1; Yakima=1.

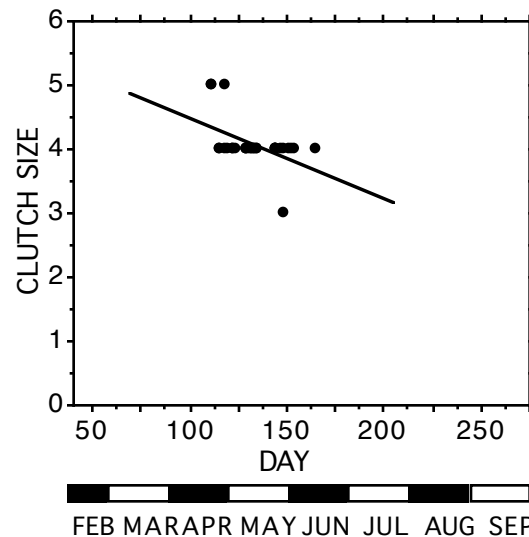
First-egg dates: Earliest 21 April (Julian day 111); latest 14 June (Julian day 165).



First-egg dates extend over a nesting season of 8 weeks, considerably longer than the time required to fledge a single brood (25 days).

Clutch size: 31 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=27), 5 eggs (N=3).

Season and clutch size: Clutch size decreases by 0.67 eggs during the 54-day season of nest initiation ($Y = 5.73 - 0.01X$; $r^2=0.24$; $p=0.0056$).



Nashville Warbler, *Vermivora ruficapilla*

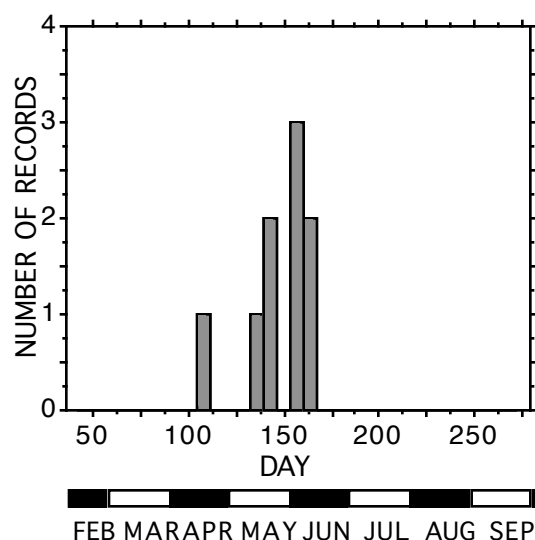
Records: 9. Burke Museum nest record cards=2; egg sets=2; field notes=5.

Counties: Chelan=1; Pierce=6; Spokane=1; Yakima=1.

First-egg dates: Earliest 18 April (Julian day 108); latest 15 June (Julian day 166). The very early record (18 April 1905; Julian day 108) is for Pierce County from Currier's notes.

Clutch size: 8 usable records. Mean 4.3 eggs. Distribution: 4 eggs (N=6), 5 eggs (N=2).

Season and clutch size: No significant change with extrapolated first-egg date was observed, but the sample is small.

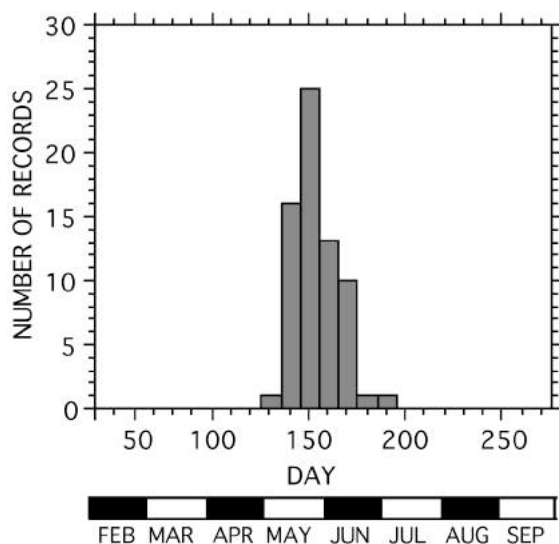


Yellow Warbler, *Dendroica petechia*

Records: 67. Burke Museum nest record cards=26 (class cards=2); egg sets=28; field notes=15.

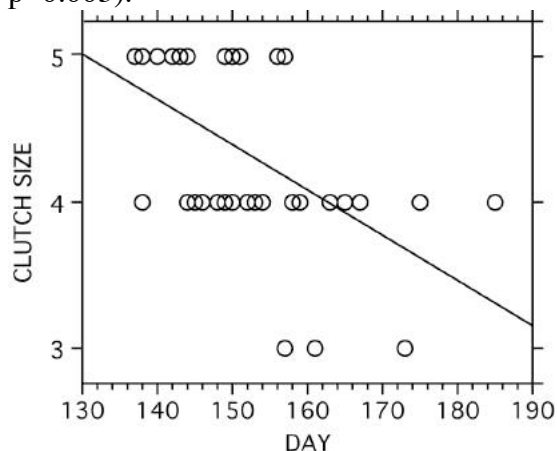
WA counties with records: Benton=2; Chelan=3; Clark=1; Grant=1; King=4; Kitsap=1; Okanogan=1; Pend Oreille=1; Pierce=19; Spokane=16; Stevens=1; Thurston=1; Walla Walla=2; Whitman=10; Yakima=4.

First-egg dates: Earliest 14 May (Julian day 134); latest 4 July (Julian day 185). Most first-egg dates are concentrated in a 30-day period, suggesting that second broods are seldom raised. The right skew in the distribution likely represents renesting following nest failures and, possibly, later nesting by yearling females.



Clutch size: 36 usable records. Mean 4.3 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=18), 5 eggs (N=15).

Season and clutch size: Clutch size decreases by 1.5 eggs over the 49 days of nest initiation ($Y = 9.09 - 0.031X$; $r^2=0.32$; $p=0.003$).



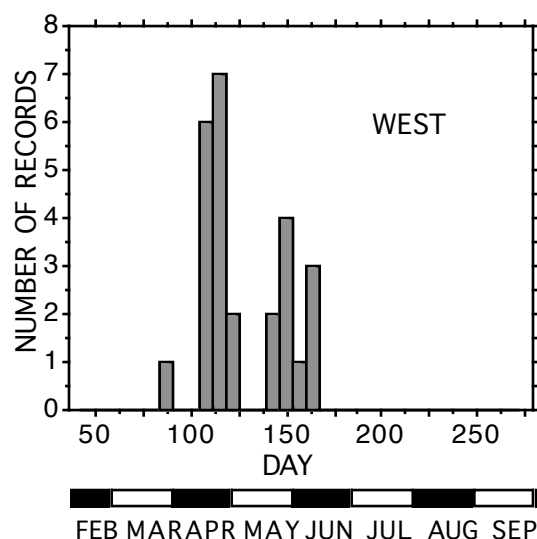
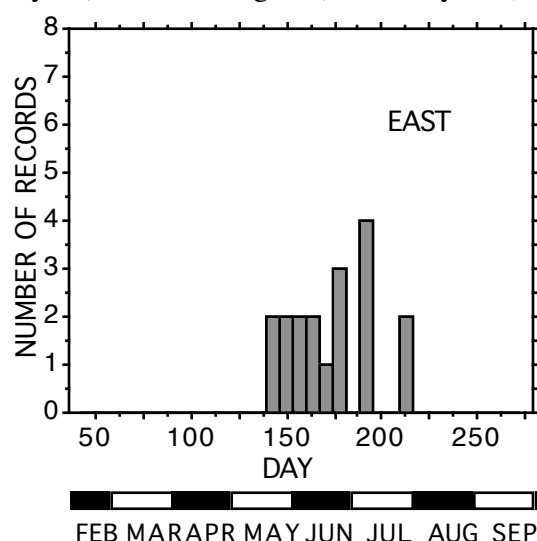
Parasitism: Of 51 nests observed while they had eggs, 7 had been parasitized by Brown-headed Cowbirds.

Yellow-rumped Warbler, *Dendroica coronata*

Records: 44. Burke Museum nest record cards=17 (class cards=1); egg sets=20; field notes=7.

Counties: Cowlitz=2; Ferry=1; King=2; Klickitat=1; Pend Oreille=1; Pierce=21; San Juan=1; Spokane=11; Whitman=2; Yakima=2.

First-egg dates: Earliest 29 March (Julian day 88); latest 2 August (Julian day 214).

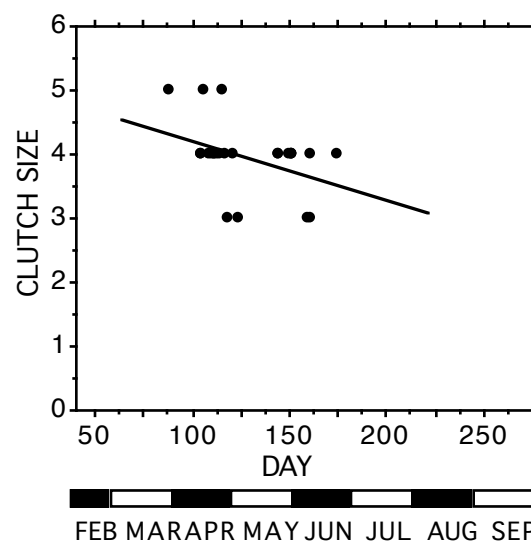


Records from eastern Washington are almost 8 weeks later than those for western Washington. Median dates: East 21 June (Julian day 172); West 27 April (Julian day 117). This effect is highly significant (Mann-Whitney test, $p < 0.001$).

Surprisingly, the east/west difference in the timing of laying was not related to elevation. However, there was only one low-elevation nest for western Washington, and most nests in eastern Washington are likely at fairly high elevations, even if they are below 2000'.

Clutch size: 25 usable records. Mean 4.0 eggs. Distribution 3 eggs (N=4), 4 eggs (N=18), 5 eggs (N=3).

Season and clutch size: Clutch size decreases by 0.5 eggs over the 55-day season of nest initiation ($Y = 5.16 - 0.009X$; $r^2 = 0.168$; $p = 0.042$).



Parasitism: Of 27 nests with eggs 4 also contained Brown-headed Cowbird eggs.

Black-throated Gray Warbler, *Dendroica nigrescens*

5 records, all collected clutches:

UWBM (eggs missing): Data slip for a 4-egg set collected by C. W. Bowles, Pierce County, extrapolated first-egg date 3 June 1897 (Julian day 154).

UWBM (eggs missing): Data slip for a 4-egg set collected by J. H. Bowles, Pierce County, extrapolated first-egg date 21 May 1897 (Julian day 141).

UWBM (eggs missing): Data slip for a 4-egg set collected by C. Bowles and B. Browne, Pierce County, extrapolated first-egg date 5 June 1897 (Julian day 156).

UWBM 5408: 4-egg set, Pierce County, extrapolated first-egg date 13 June 1909 (Julian day 164).

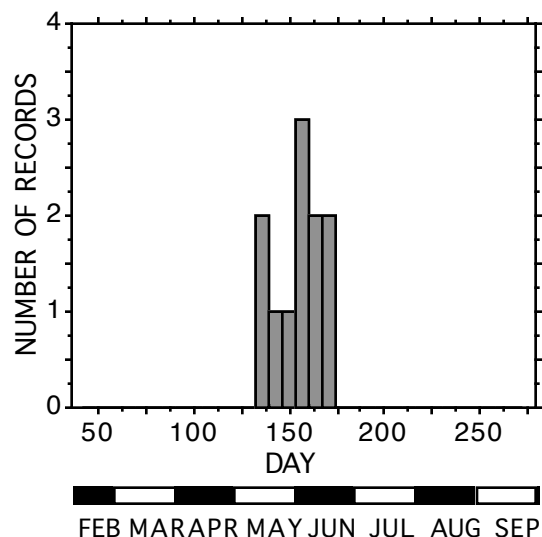
WFZ 85093: 4-egg set, King County, extrapolated first-egg date 28 May 1911 (Julian day 148).

Townsend's Warbler, *Dendroica townsendi*

Records: 11. Burke Museum nest record card=1; egg sets=4; Burke specimens=6.

Counties: Chelan=4; Clallam=2; King=2; Kittitas=1; Lewis=1; Skamania=1.

First-egg dates: Earliest 14 May (Julian day 134); latest 20 June (Julian day 171).



The median first-egg date is 6 June (Julian day 157). The short season of 37 days suggests that second broods are not raised.

Because these clutches were collected before the hybrid zone between Hermit and Townsend's Warblers was discovered (Rohwer and Wood 1998), some may represent hybrids. However, the breeding phenology for Hermit and Townsend's Warblers and their hybrids is not different (Pearson and Rohwer 1998).

Clutch size: 6 usable records. Mean 4.3 eggs. Distribution: 3 eggs (N=2), 5 eggs (N=4).

Season and clutch size: Not evaluated because there were just 6 usable records.

Hermit Warbler, *Dendroica occidentalis*

2 records, both collected clutches:

WFVZ 14458: 4-egg set, Pierce County, extrapolated first-egg date 30 May 1910 (Julian day 150).

WFVZ 7003: 4-egg set, Pierce County, extrapolated first-egg date 31 May 1920 (Julian day 150).

Because these clutches were collected before the hybrid zone between Hermit and Townsend's Warblers was discovered (Rohwer and Wood 1998), they may represent hybrids, which are common in Pierce County. However, the breeding phenology for Hermit and Townsend's Warblers and their hybrids is not different (Pearson and Rohwer 1998).

American Redstart, *Setophaga ruticilla*

7 records:

Burke Museum cards:

Spokane County, fledglings being fed by female, extrapolated first-egg date 2 June 1973 (Julian day 153),

Spokane County, female apparently incubating, extrapolated first-egg date 13 June 1968 (Julian day 164).

Stevens County, 2 eggs, extrapolated first-egg date 20 June 1973 (Julian day 171). This clutch also contained a Brown-headed Cowbird egg.

Okanogan County, nest with 4 eggs, extrapolated first-egg date 20 June 1979 (Julian day 171).

Collected clutches:

UWBM: WWC 320: 1-egg set, Walla Walla County, 30 June 1930 (Julian day 181).

PSM 16240: 3-egg set, Spokane County, extrapolated first-egg date 21 June 1907 (Julian day 172).

Field notes:

Whitman County, nest with 4 eggs, extrapolated first-egg date 4 June 1952 (Julian day 155).

Northern Waterthrush, *Seiurus noveboracensis*

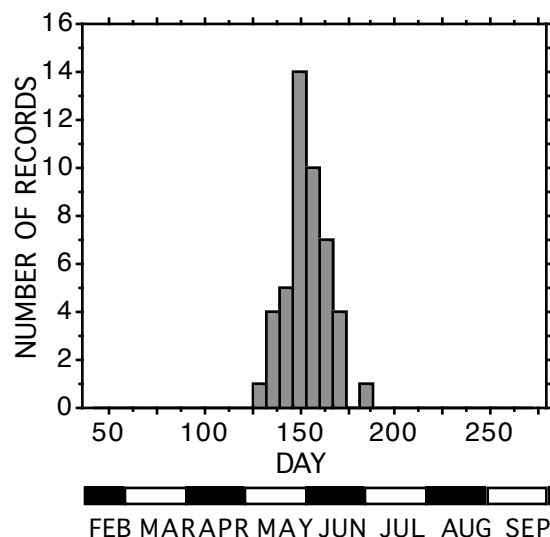
1 record: A Burke Museum card for at least one young, Calispel Peak Rd., Pend Oreille County, near 4000 ft. elevation, extrapolated first-egg date 25 June 1969 (Julian day 176).

MacGillivray's Warbler, *Oporornis tolmiei*

Records: 46. Burke Museum nest record cards=4; egg sets=33; field notes=9.

Counties: Chelan=9; Clallam=1; Columbia=1; King=3; Kittitas=1; Pend Oreille=2; Pierce=20; Spokane=1; Whitman=5; Yakima=3.

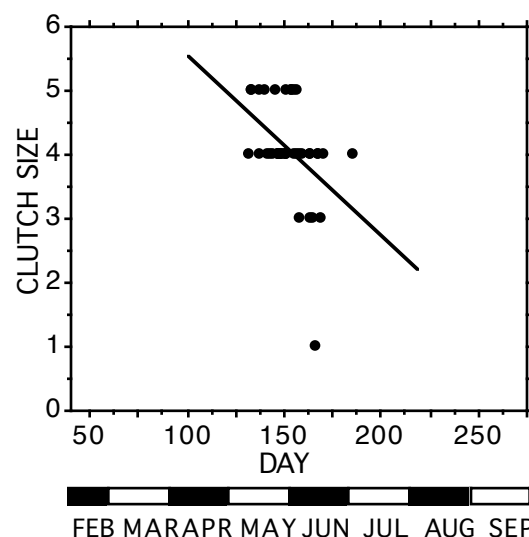
First-egg dates: Earliest 12 May (Julian day 132); latest 5 July (Julian day 186).



First-egg dates span 54 days but the distribution lacks the right skew that would suggest that second broods are raised.

Clutch size: 40 usable records. Mean 4.1 eggs. Distribution: 1 egg (N=1), 3 eggs (N=4), 4 eggs (N=25), 5 eggs (N=10).

Season and clutch size: Clutch size decreases by 1.5 eggs during the 54 days of nest initiation ($Y = 8.45 - 0.03X$; $r^2=0.19$; $p=0.0048$).



Parasitism: Of 46 nests with eggs, a clutch noted in the King/Shaw notes from Whitman County in 1952 also contained two Brown-headed Cowbird eggs.

Common Yellowthroat, *Geothlypis trichas*

Records: 16. Burke Museum nest record cards=1; egg sets=11; field notes=4.

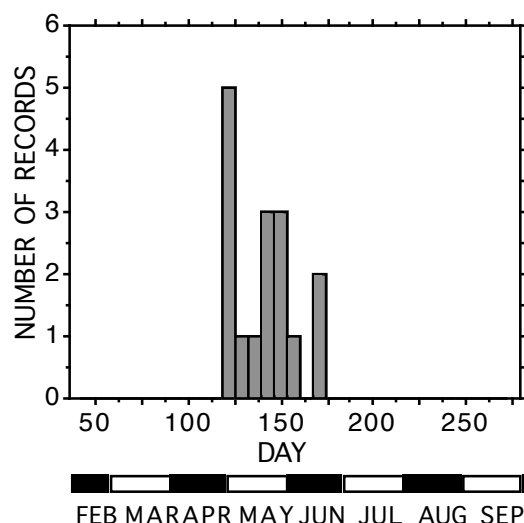
Counties: Grant=2; King= 1; Pierce=9; Thurston=1; Walla Walla=1; Whitman=1; Yakima=1.

First-egg dates: Earliest 1 May (Julian day 121); latest 18 June (Julian day 169). Later records are from eastern Washington (N=5, median date 3 June, Julian day 154) while early records are from western Washington (N=11, median date 9 May, Julian day 129).

Clutch size: 15 usable records. Mean 4.0 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=13), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season, but nearly all clutches had 4 eggs.

Parasitism: Of 16 nests containing eggs a nest in Whitman County in 1952 (King/Shaw notes) also contained a Brown-headed Cowbird egg.



Wilson's Warbler, *Wilsonia pusilla*

7 records:

Burke Museum cards:

King County, nest with 3 young, extrapolated first-egg date 19 June 1958 (Julian day 170).

King County, nest with 4 eggs, extrapolated first-egg date 3 June 1959 (Julian day 154).

Spokane County, nest being built, extrapolated first-egg date 6 June 1961 (Julian day 157).

Collected clutches:

UWBM 5564: 5-egg set, King County, extrapolated first-egg date 1 June 1911 (Julian day 152).

PSM 16296: 5-egg set, Pierce County, extrapolated first-egg date 4 June 1933 (Julian day 155).

Currier notes:

Pierce County, nest with 5 eggs, extrapolated first-egg date 5 June 1905 (Julian day 156).

Yellow-breasted Chat, *Icteria virens*

6 records, all collected clutches:

UWBM 27243: 4-egg set, Yakima County,
extrapolated first-egg date 10 June 1923
(Julian day 161).

UWBM 5768: 3-egg set, Yakima County,
extrapolated first-egg date 23 June 1915
(Julian day 174).

PSM 16311: 5-egg set, Benton County,
extrapolated first-egg date 28 May 1915
(Julian day 148).

PSM 16307: 5-egg set, Benton County,
extrapolated first-egg date 4 June 1920
(Julian day 155). This set also contains 3
Brown-headed Cowbird eggs.

PSM 16312: 3-egg set, Yakima County,
extrapolated first-egg date 23 June 1915
(Julian day 174).

WFVZ 14517: 4-egg set, Yakima County
extrapolated first-egg date 12 June 1923
(Julian day 163).

THRAUPIDAE

Western Tanager, *Piranga ludoviciana*

Records: 25. Burke Museum nest record cards=12 (class cards=2); egg sets=10; field notes=3.

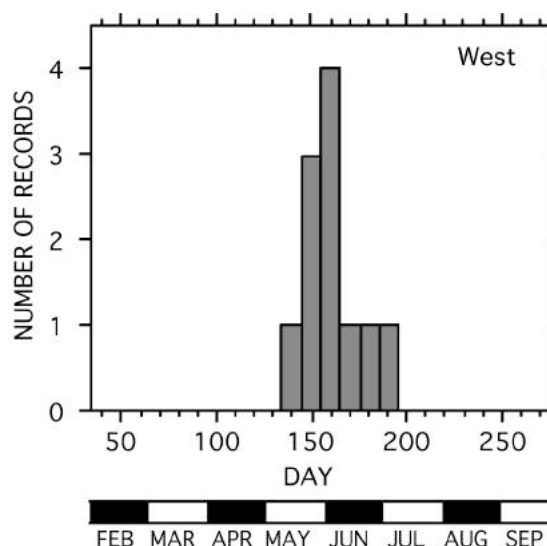
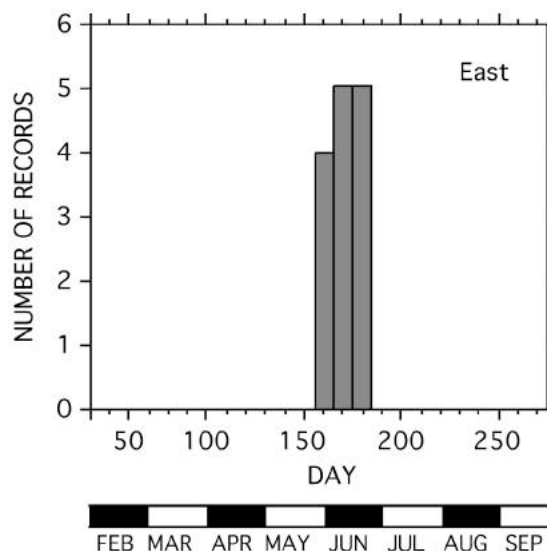
Counties: Asotin=1; Chelan=1; King=3; Kittitas=1; Okanogan=1; Pend Oreille=1; Pierce=6; Skamania=2; Spokane=2; Whitman=3; Yakima=4.

First-egg dates: Earliest 23 May (Julian day 143); latest 5 July (Julian day 186). First-egg dates are later in eastern Washington (N=14, median 19 June, Julian day 170) than in western Washington (N=11, median 6 June, Julian day 157).

Clutch size: 14 usable records. Mean 3.8 eggs. Distribution: 1 egg (N=1), 3 eggs (N=2), 4 eggs (N=9), 5 eggs (N=2).

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of 18 nests containing eggs, 1 was parasitized by a Brown-headed Cowbird. However another card from Spokane County records a female feeding a fledgling cowbird.



CARDINALIDAE

Black-headed Grosbeak, *Pheucticus melanocephalus*

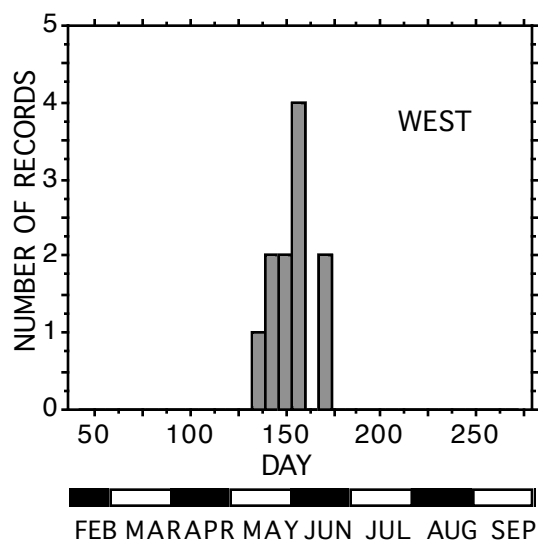
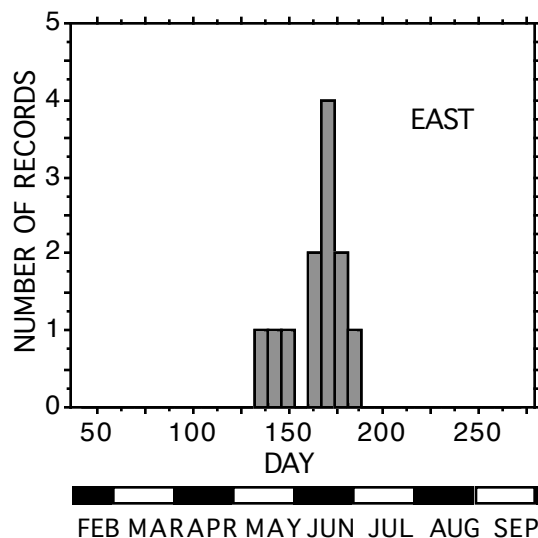
Records: 23. Burke Museum nest record cards=5; egg sets=15; field notes=3.

Counties: Chelan=1; Garfield=1; King=6; Pierce=5; Spokane=2; Walla Walla=1; Whitman=4; Yakima=3.

First-egg dates: Earliest 15 May (Julian day 135); latest 5 July (Julian day 186). First-egg dates are later for eastern Washington (median 19 June, Julian day 170) than for western Washington (median date 6 June, Julian day 157). This difference is significant (Mann-Whitney test, $p = 0.04$), and is partly driven by the two records from eastern Washington being from areas over 2000' elevation. Neither distribution is skewed right, suggesting no second broods.

Clutch size: 18 usable records. Mean 3.4 eggs. Distribution: 1 egg (N=1), 3 eggs (N=7), 4 eggs (N=10).

Season and clutch size: Clutch size does not decline with season if the single 1-egg clutch is eliminated from the 18 records that met our criteria for being valid.

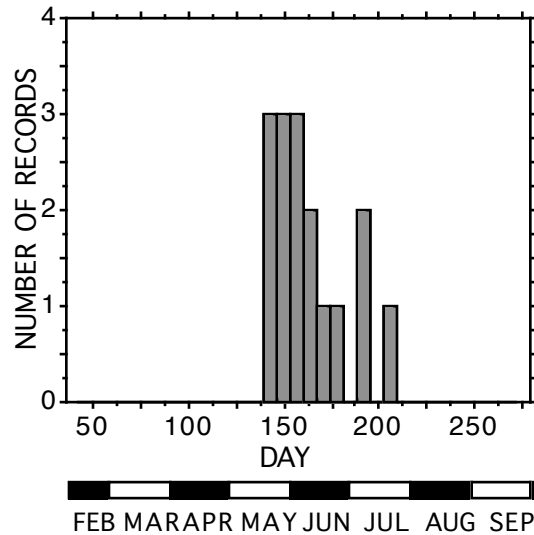


Lazuli Bunting, *Passerina amoena*

Records: 16. Burke Museum nest record cards=3; egg sets=10; field notes=3.

Counties: Asotin=1; Benton=1; Pierce=5; Spokane=2; Walla Walla=1; Whitman=3; Yakima=3.

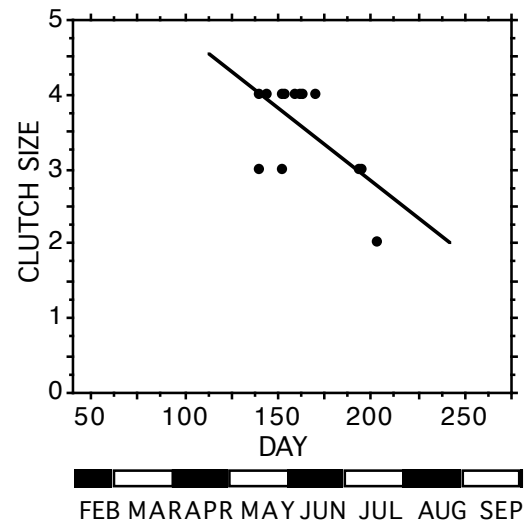
First-egg dates: Earliest 21 May (Julian day 141); latest 23 July (Julian day 204).



First-egg dates extend over a 63-day season with median date 8 June (Julian day 159). The long season, right skew in the distribution, and hint of a second laying peak in July suggest that two broods are common.

Clutch size: 13 usable records. Mean 3.5 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=4), 4 eggs (N=8).

Season and clutch size: Clutch size decreases by 1.2 eggs over the 63-day season of nest initiation ($Y = 6.8 - 0.02X$; $r^2=0.40$; $p=0.020$).



Parasitism: Of 16 nests containing eggs 2 were parasitized by Brown-headed Cowbirds.

EMBERIZIDAE

Green-tailed Towhee, *Pipilo chlorurus*

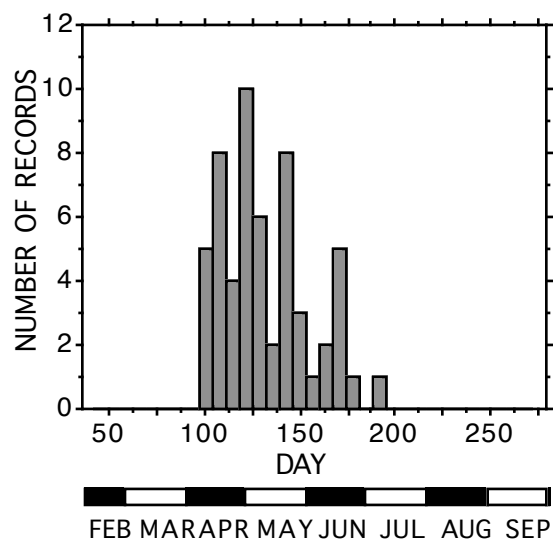
Recorded to breed in Washington, but no records in our files.

Spotted Towhee, *Pipilo maculatus*

Records: 56. Burke Museum nest record cards=18 (class cards=7); egg sets=29; field notes=9.

Counties: Chelan=4; Ferry=1; Grays Harbor=1; Island=1; King=23; Kitsap=1; Pierce=16; Snohomish=2; Spokane=1; Thurston=1; Whatcom=3; Yakima=2.

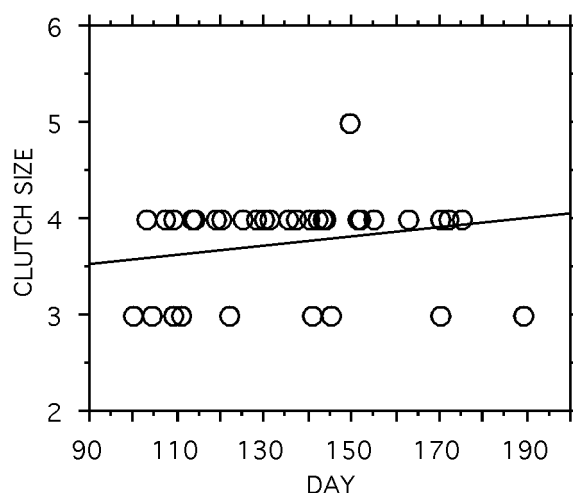
First-egg dates: Earliest 10 April (Julian day 100); latest 8 July (Julian day 189).



First-egg dates extend over an 89-day season, with median date of 7 May (Julian day 127). The long season and right skew in the distribution suggest that second broods are common.

Clutch size: 42 usable records. Mean 3.7 eggs. Distribution: 3 eggs (N=12), 4 eggs (N=29), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.052$).



Chipping Sparrow, *Spizella passerina*

Records: 92. Burke Museum nest record cards=49; egg sets=13; field notes=30.

Counties: Chelan=2; Douglas=5; Kittitas=3; Pierce=23; Spokane=38; Walla Walla=1; Whitman=16; Yakima=4.

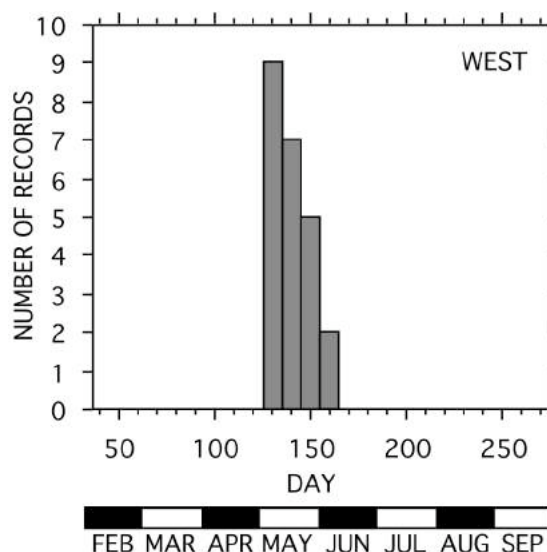
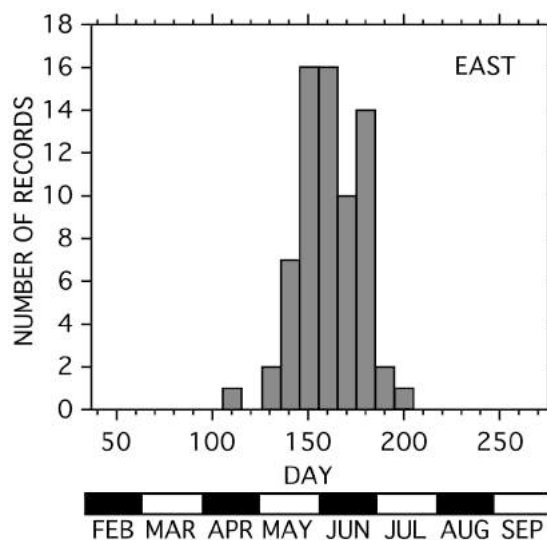
First-egg dates: Earliest 15 April (Julian day 105); latest 23 July (Julian day 204). The peak of nest initiation is earlier in western Washington (N=23; median 17 May; Julian day 137) than eastern Washington (N=69; median 9 June; Julian day 160). The early end of the laying season is striking in western Washington. However, all of the records from western Washington are from early egg collectors who may not have been active late in the season.

In eastern Washington records above 2000' are significantly ($P = 0.03$) later, (N=39, median date 12 June, Julian day 163) than records below 2000' (N=30, median date 27 May, Julian day 147).

Clutch size: 32 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=1), 4 eggs (N=28), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of 52 nests with eggs, 9 also contained Brown-headed Cowbird eggs.



Clay-colored Sparrow, *Spizella pallida*

Recorded to breed in Washington, but no records in our files.

Brewer's Sparrow, *Spizella breweri*

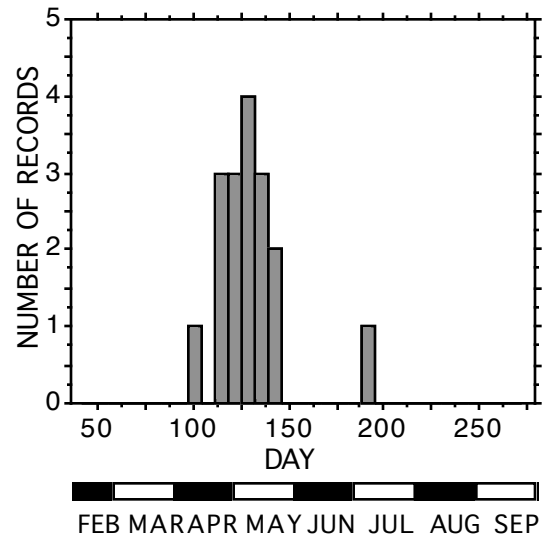
Records: 17. Burke Museum nest record cards=2; egg sets=13; field notes=2.

Counties: Benton=8; Douglas=1; Kittitas=3; Lincoln=1; Whitman=2; Yakima=3.

First-egg dates: Earliest 8 April (Julian day 98); latest 8 July (Julian day 189). With the exception of a late record for 8 July (Julian day 189), first-egg dates are clustered around the median date of 7 May (Julian day 127).

Clutch size: 13 usable records. Mean 3.2 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=9), 4 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Vesper Sparrow, *Pooecetes gramineus*

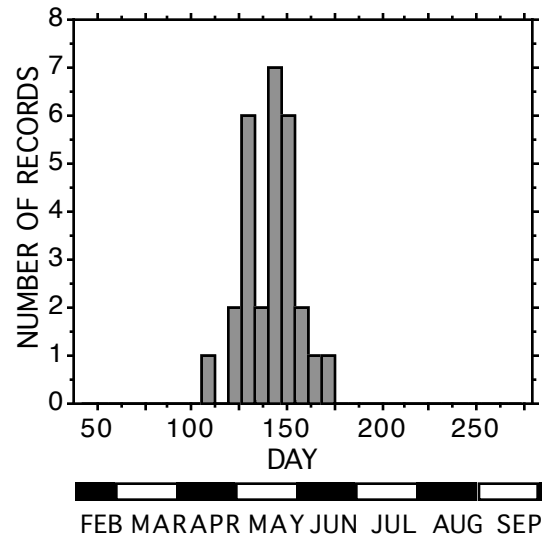
Records: 28. Burke Museum nest record cards=3; egg sets=19; field notes=6.

Counties: Kittitas=2; Pierce=19; Spokane=1; Whitman=2; Yakima=4.

First-egg dates: Earliest 16 April (Julian day 106); latest 22 June (Julian day 173). Although first-egg dates span 10 weeks, the unimodal distribution without right skew suggests no second broods.

Clutch size: 23 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=3), 4 eggs (N=19), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



Lark Sparrow, *Chondestes grammacus*

2 records, both collected clutches:

PSM 16439: 5-egg set, Douglas County,
extrapolated first-egg date 4 June 1908
(Julian day 155).

WSU 396: 4-egg set, Whitman County,
extrapolated first-egg date 5 June 1898
(Julian day 156).

Black-throated Sparrow, *Amphispiza bilineata*

Recorded to breed in Washington, but no records in our files.

Sage Sparrow, *Amphispiza belli*

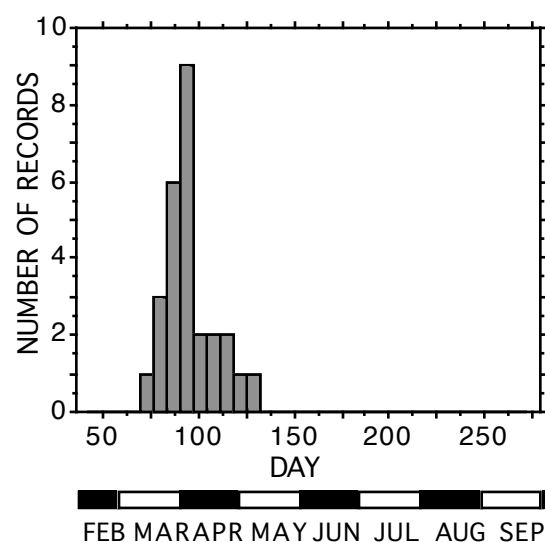
Records: 27. Burke Museum nest record
cards=1 (class card=1); egg sets=26.

Counties: Benton=17; Grant=1; Kittitas=4;
Yakima=5.

First-egg dates: Earliest 16 March (Julian
day 75); latest 10 May (Julian day 130).
First-egg dates span an 8-week season. The
weak right skew in distribution and the lack
of a second peak suggest reneesting after
failures, but that second broods are not
raised.

Clutch size: 24 usable records. Mean 3.4
eggs. Distribution: 2 eggs (N=1), 3 eggs
(N=14), 4 eggs (N=8), 5 eggs (N=1).

Season and clutch size: Clutch size did not
change significantly with season.



Grasshopper Sparrow, *Ammodramus savannarum*

2 records, both Burke Museum cards:

Grant County, nest with 4 eggs, extrapolated
first-egg date 13 May 1968 (Julian day 133).

Grant County, nest with 5 young,
extrapolated first-egg date 9 May 1977
(Julian day 129).

Savannah Sparrow, *Passerculus sandwichensis*

Records: 24. Burke Museum nest record cards=15 (class cards=6); egg sets=4; field notes=5.

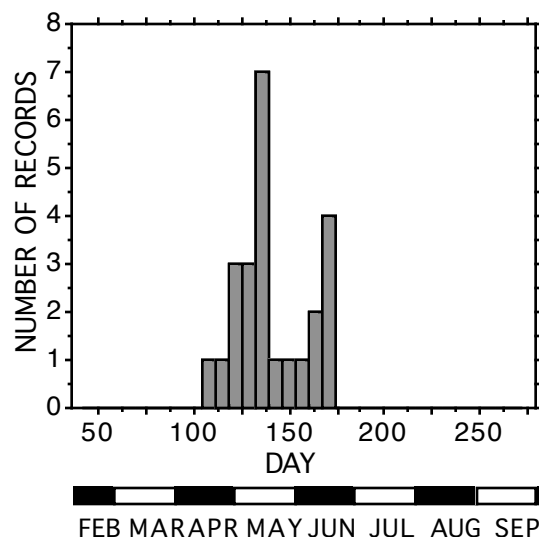
Counties: Grant=1; Grays Harbor=1; King=6; Lincoln=1; Pierce=6; Thurston=3; Walla Walla=1; Whatcom=3; Whitman=2.

First-egg dates: Earliest 16 April (Julian day 106); latest 21 June (Julian day 172).

The strongly bimodal distribution of first-egg dates suggests that Savannah Sparrows raise two broods. Interestingly, the double peak is caused entirely by the 19 records from western Washington. The 5 records from Eastern Washington all fall in the early peak. If this east-west difference is not an artifact of the small sample, it suggests two broods are raised only in western Washington.

Clutch size: 19 usable records. Mean 4.0 eggs. Distribution: 2 eggs (N=1), 3 eggs (N=1), 4 eggs (N=14), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Fox Sparrow, *Passerella iliaca*

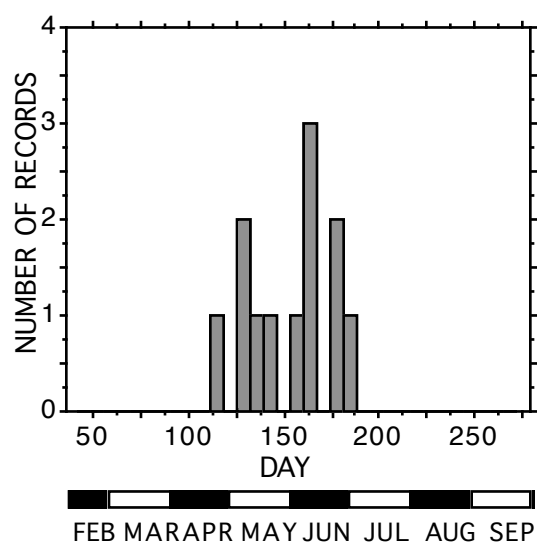
Records: 12. Burke Museum nest record cards=1; egg sets=11.

Counties: Clallam=1; Columbia=2; King=1; Pierce=1; Spokane=6; Yakima=1.

First-egg dates: Earliest 23 April (Julian day 113); latest 2 July (Julian day 183). Records are very limited, but the long season and hint of bimodality in the distribution of first-egg dates suggests two broods.

Clutch size: 9 usable records. Mean 3.4 eggs. Distribution: 3 eggs (N=5), 4 eggs (N=4).

Season and clutch size: Clutch size did not change significantly with season.



Song Sparrow, *Melospiza melodia*

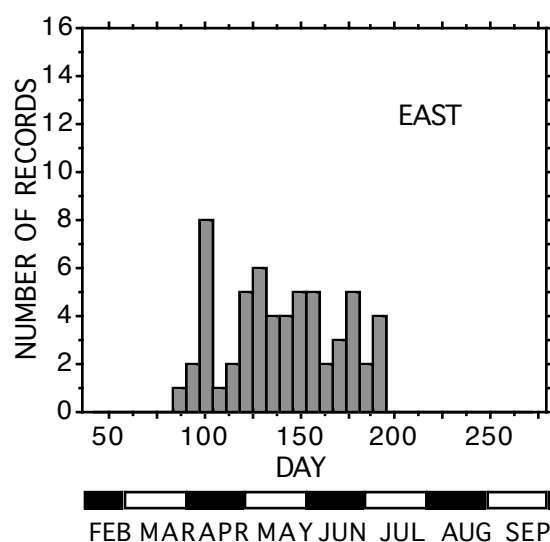
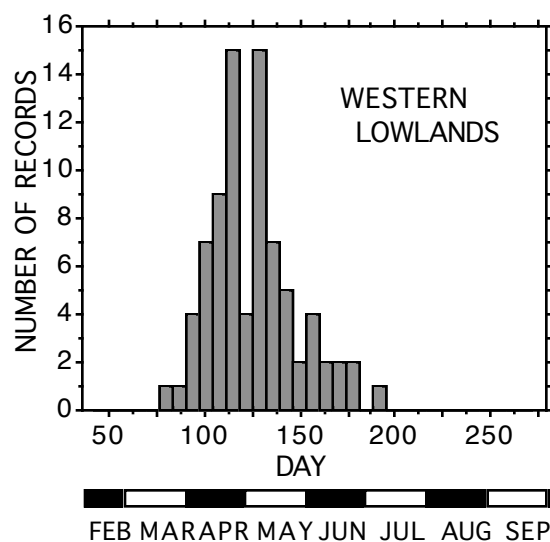
Records: 140. Burke Museum nest record cards=52 (class cards=7); egg sets=67; field notes=21.

Counties: Benton=4; Chelan=4; Clallam=1; Ferry=1; Garfield=1; Grays Harbor=2; Island=1; King=34; Kitsap=3; Kittitas=3; Okanogan=2; Pacific=1; Pierce=33; Skagit=4; Spokane=16; Walla Walla=1; Whatcom=2; Whitman=8; Yakima=19.

First-egg dates: N=140. Earliest 24 March (Julian day 83); latest 14 July (Julian day 195). Nesting starts about the same time in eastern and western Washington. Because there was just one record from western Washington from above 2000', we excluded it and labeled the top graph Western Lowlands.

In eastern Washington nesting is slightly later for the 11 records from above 2000' than for the 48 records from below 2000', but the difference is not significant (Mann-Whitney test, $p = 0.10$).

The long season of over 100 days in both eastern and western Washington suggest that second broods are frequent. For western Washington the strong early peak in first-egg dates, together with the paucity of late records could indicate less double brooding by the more resident birds of the western Washington lowlands. However, the relative shortage of late-season records for western Washington may only reflect the difficulty of finding Song Sparrow nests in late summer, following the rank spring growth of nettles and other plants where nests are hidden in western Washington.

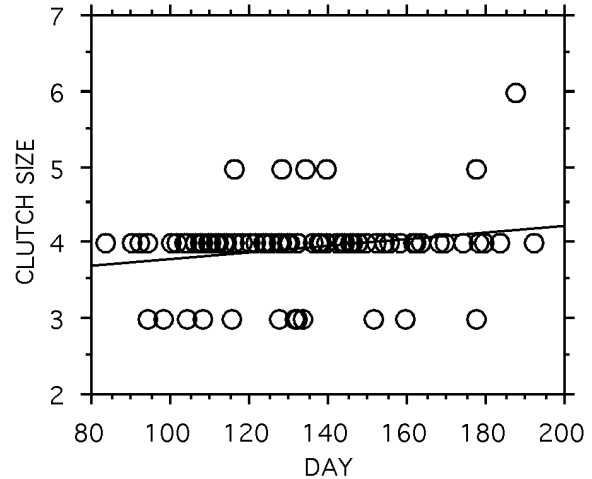


Clutch size: 102 usable records. Mean 3.9 eggs. Distribution: 3 eggs (N=14), 4 eggs (N=82), 5 eggs (N=5), 6 eggs (N=1).

Clutch size was somewhat larger for the 9 records from above 2,000' but the difference was not statistically significant (Mean=4.3 eggs; distribution: 4 eggs (N=7), 5 eggs (N=1), 6 eggs (N=1)).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.049$).

Parasitism: Of 117 nests containing eggs, 8 were parasitized by Brown-headed Cowbirds.



Lincoln's Sparrow, *Melospiza lincolnii*

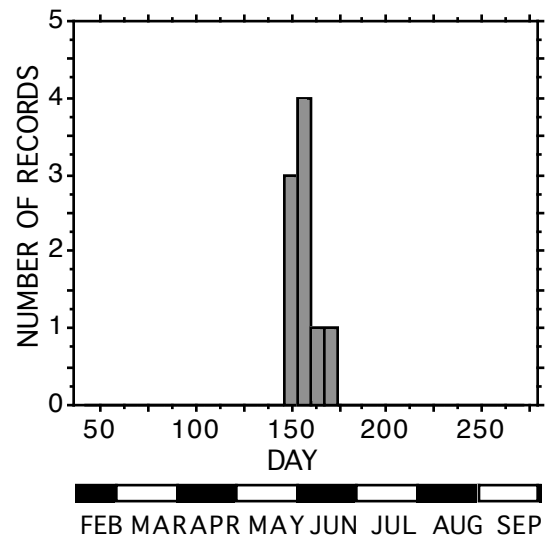
Records: 9. Burke Museum nest record cards=2; egg sets=7.

Counties: Kittitas=1; Pierce=1; Yakima=7.

First-egg dates: Earliest 27 May (Julian day 147); latest 18 June (Julian day 169). Nesting starts late in this high elevation breeder, and the limited number of records span just 4 weeks.

Clutch size: 6 usable records. Mean 4.7 eggs. Distribution: 4 eggs (N=2), 5 eggs (N=4).

Season and clutch size: Not evaluated because there were just 6 usable records.



Golden-crowned Sparrow, *Zonotrichia atricapilla*

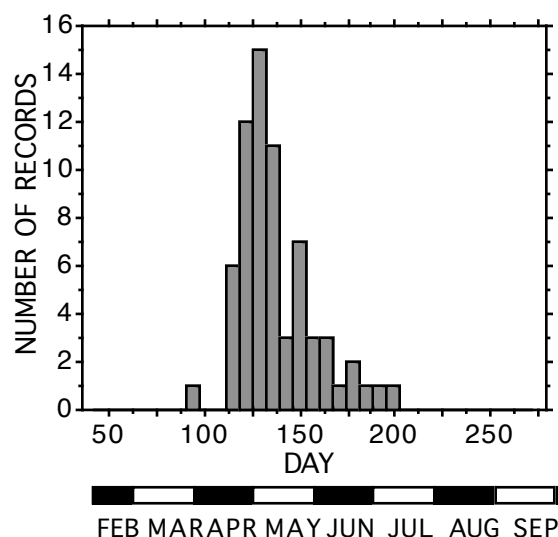
Recorded to breed in Washington, but no records in our files.

White-crowned Sparrow, *Zonotrichia leucophrys*

Records: 67. Burke Museum nest record cards=32 (class cards=5); egg sets=25; field notes=10.

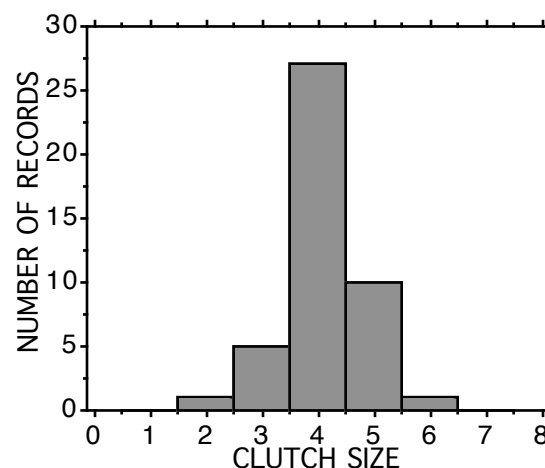
Counties: Clallam=3; Clark=1; Island=7; King=16; Kitsap=1; Pacific=4; Pierce=29; Whatcom=6.

First-egg dates: Earliest 2 April (Julian day 92); latest 20 July (Julian day 201).



Most records fall in the striking early peak of nest initiation. However, the long season and strong right skew in the distribution of first-egg dates suggests many second broods.

Clutch size: 44 usable records. Mean 4.1 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of the 66 nests examined with eggs, one from 1965 in King County contained a Brown-headed Cowbird egg. A collected clutch from Whatcom County in 1918 contained 2 California Quail eggs.

Dark-eyed Junco, *Junco hyemalis*

Records: 155. Burke Museum Nest Record cards=72 (class cards=9); egg sets=72; field notes=11.

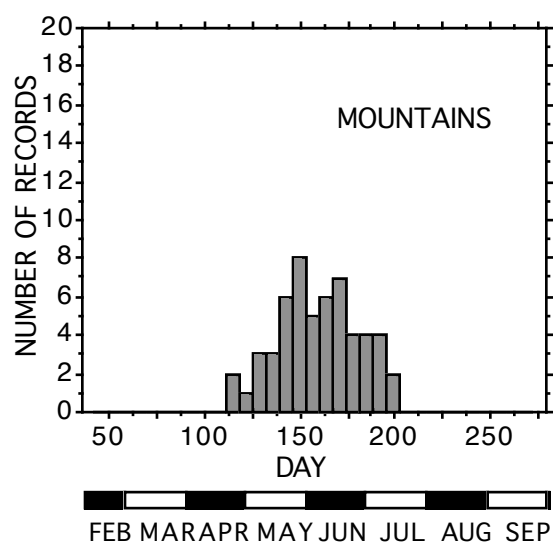
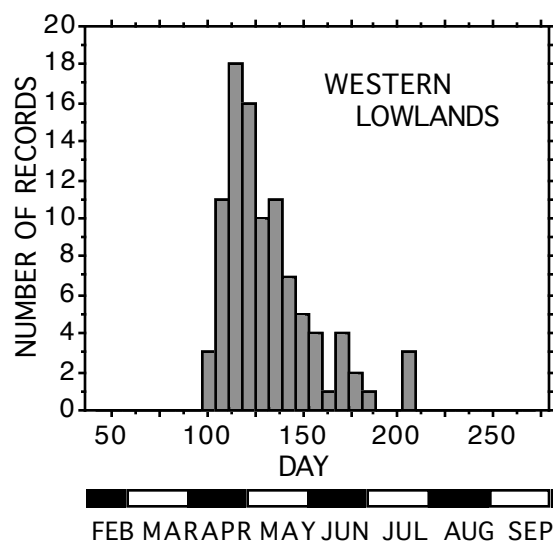
Counties: Chelan=8; Clallam=3; Clark=1; Columbia=3; Ferry=2; Grays Harbor=2; Island=4; King=17; Kittitas=5; Lewis=2; Mason=2; Okanogan=1; Pacific=1; Pend Oreille=3; Pierce=68; San Juan=1; Skamania=1; Snohomish=1; Spokane=10; Thurston=1; Whatcom=6; Whitman=1; Yakima=12.

First-egg dates: Earliest 11 April (Julian day 101); latest 28 July (Julian day 209). Nesting is much earlier at low elevations in western Washington (N=96; median 4 May; Julian day 124) than above 2000' in the mountains (N=55; median 9 June; Julian day 160).

Clutch size: 94 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=7), 4 eggs (N=72), 5 eggs (N=15).

Season and clutch size: Clutch size did not vary with season either in the lowlands of western Washington or in the mountains.

Parasitism: Of 153 nests examined while containing eggs, 6 were parasitized by Brown-headed Cowbirds.



ICTERIDAE

Bobolink, *Dolichonyx oryzivorus*

Recorded to breed in Washington, but no records in our files.

Western Meadowlark, *Sturnella neglecta*

Records: 37. Burke Museum nest record cards=13 (class cards=3); egg sets=17; field notes=7.

Counties: Adams=1; Benton=3; Cowlitz=1; Franklin=1; Grant=6; Grays Harbor=3; King=1; Kittsapi=1; Klickitat=2; Pend Oreille=1; Pierce=9; Skagit=1; Spokane=2; Whitman=3; Yakima=2.

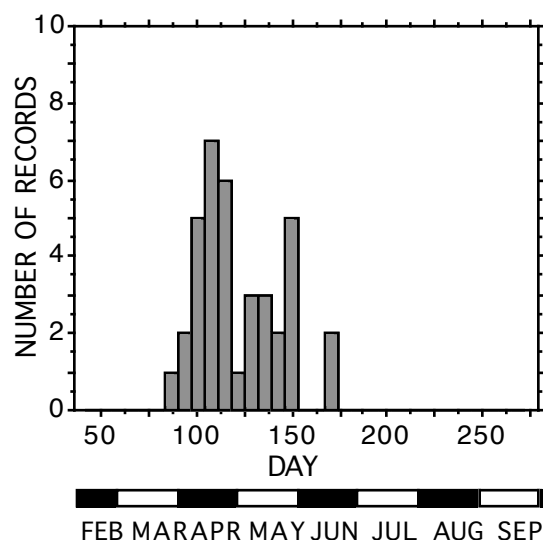
First-egg dates: Earliest 25 March (Julian day 84); latest 22 June (Julian day 173).

The bimodal distribution of first-egg dates suggests second broods, and they appear to be frequent, as there are 22 records in the first peak and 15 in the second. Laying to fledging requires about 30 days for meadowlarks, and the two peaks are separated by about 35 days.

Clutch size: 26 usable records. Mean 4.9 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=4), 5 eggs (N=15), 6 eggs (N=5).

Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of 26 nests observed during the egg stage, one nest from Benton County contained a California Quail egg.

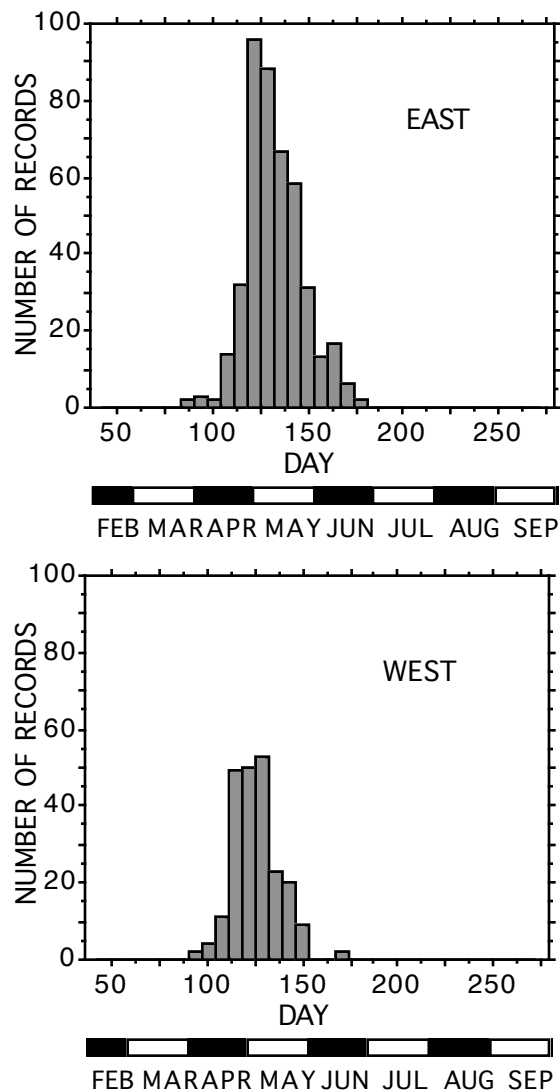


Red-winged Blackbird, *Agelaius phoeniceus*

Records: 654. Burke Museum nest record cards=283 (class cards=210); egg sets=51; field notes=320.

Counties: Benton=11; Grant=379; Island=1; King=184; Kitsap=4; Kittitas=7; Okanogan=2; Pierce=26; Skagit=3; Snohomish=2; Spokane=3; Thurston=2; Walla Walla=1; Whatcom=1; Whitman=22; Yakima=6.

First-egg dates: Earliest 29 March (Julian day 88); latest 28 June (Julian day 179).

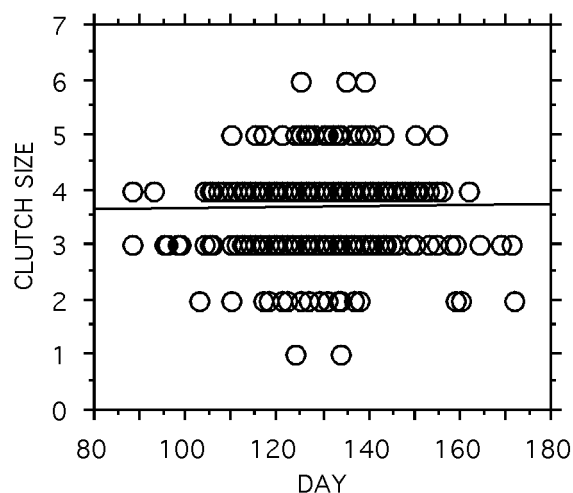


In eastern Washington (N=431) the median first-egg date was 11 May (Julian day 131), while in western Washington (N=223) it was 5 May (Julian day 125). The length of the laying season is similar in eastern and western Washington, therefore this difference is driven by the earlier start of nesting in western Washington (Mann-whitney test, $p < 0.001$). There were only 6 high elevation records, but their median date was much later, 31 May (Julian day 151).

It is exceptional for redwings to raise two broods in Washington. Thus the weak right skew in the two distributions of first-egg dates is likely due to renesting after failures.

Clutch size: 424 usable records. Mean 3.7 eggs. Distribution: 1 egg (N=2), 2 eggs (N=26), 3 eggs (N=123), 4 eggs (N=230), 5 eggs (N=40), 6 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season ($r^2=0.005$).



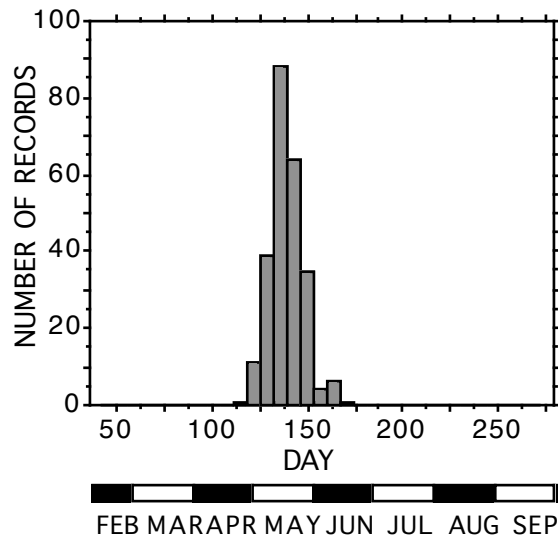
Parasitism: Of 582 nests with eggs, 46 contained Brown-headed Cowbird eggs. Cowbird parasitism was not reported in the 44 nests examined while they had eggs between 1897 and 1952.

Yellow-headed Blackbird, *Xanthocephalus xanthocephalus*

Records: 249. Burke Museum nest record cards=99 (class cards=44); egg sets=14; field notes=136.

Counties: Benton=1; Grant=244; Yakima=4.

First-egg dates: Earliest 28 April (Julian day 118); latest 18 June (Julian day 169).

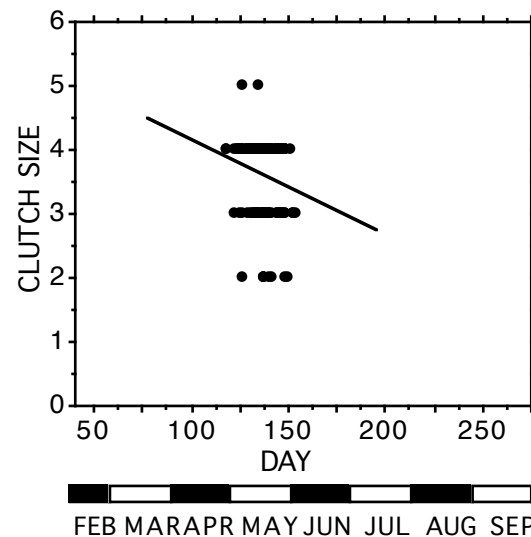


Almost all records are from the Columbia Basin where most nests are initiated between 10 and 25 May. Second broods are not raised; thus the very limited right skew in

the distribution should only reflect renesting after failures.

Clutch size: 160 usable records. Mean 3.6 eggs. Distribution: 2 eggs (N=8), 3 eggs (N=49), 4 eggs (N=101), 5 eggs (N=2).

Season and clutch size: Clutch size shows a decrease of 0.54 eggs over the 36-day season of nest initiation ($Y = 5.68 - 0.02X$; $r^2=0.031$; $p = 0.026$).

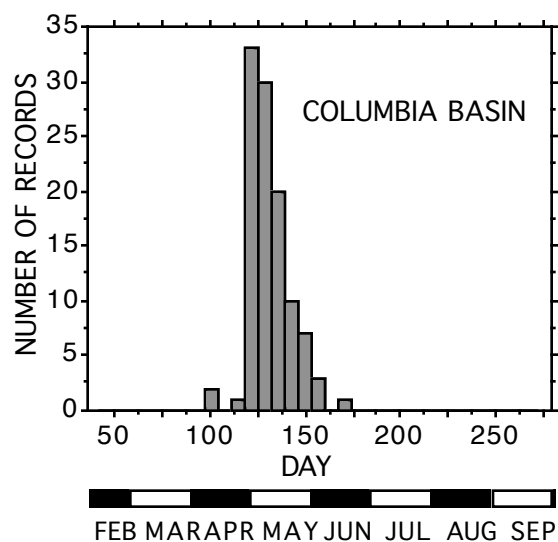
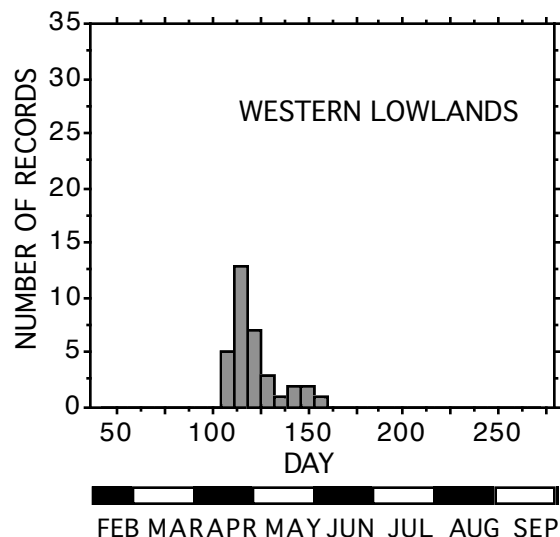


Brewer's Blackbird, *Euphagus cyanocephalus*

Records: 195. Burke Museum nest record cards=147 (class cards=18); egg sets=32; field notes=16.

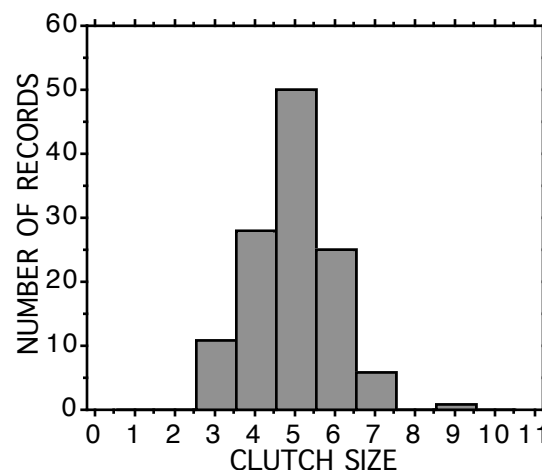
Counties: Benton=3; Chelan=1; Clallam=3; Douglas=68; Garfield=7; Grant=23; Grays Harbor=4; Jefferson=2; King=6; Kittitas=6; Lewis=3; Lincoln=1; Okanogan=1; Pierce=6; Skagit=1; Spokane=26; Walla Walla=3; Whatcom=9; Whitman=15; Yakima=7.

First-egg dates: Earliest 13 April (Julian day 103); latest 18 June (Julian day 169).

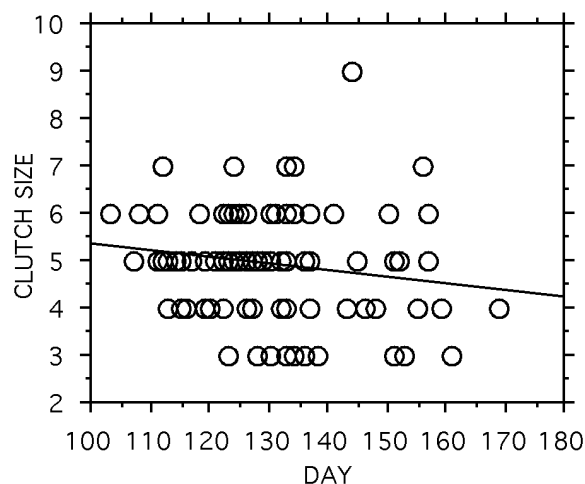


Nesting is about 10 days earlier for western Washington lowlands (N=34; median 27 April, Julian day 117) than for the Columbia Basin (N=107; median 8 May; Julian day 128). This difference is strongly significant (Mann-Whitney test, $p < 0.001$).

Clutch size: 121 records. Mean 4.9 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.027$).



Parasitism: Of 165 nests with eggs, 17 contained Brown-headed Cowbird eggs. The rate of cowbird parasitism increased dramatically in the 1960's. Just 1 of 91 clutches was parasitized from 1900-1960, but 16 of 99 clutches were parasitized from 1961-2000.

Brown-headed Cowbird, *Molothrus ater*

Brown-headed Cowbirds are obligate brood parasites, which means that they do not build nests or rear their own young. Instead they lay in the nests of other species. If these other species are acceptors of cowbird eggs they then incubate the cowbird eggs and rear the young to independence. A few larger potential host species that have bills large enough to handle cowbird eggs are known to remove cowbird eggs from their nests (Rohwer and Spaw 1988).

As parasites Brown-headed Cowbirds are generalists, having been recorded to lay in the nests of more than 200 species (Friedmann et al. 1977). We examined the interactions between cowbirds and their hosts in Washington by generating a matrix of potential hosts whose nest contents had been checked while they contained at least one egg. Nests of potential hosts that were first checked while they contained young were excluded from these analyses because nestling cowbirds are often difficult to distinguish from host nestlings, particularly for birders who contribute many records to the NW nest record program.

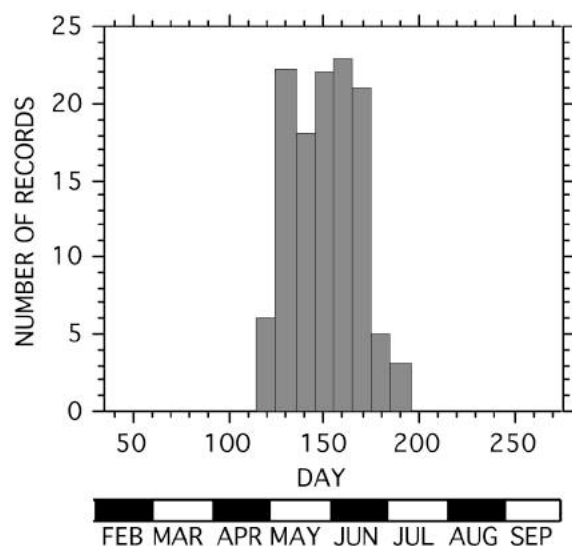
The species we treated as potential hosts were all passerines that are regularly parasitized by Brown-headed Cowbirds in some parts of their range (Friedmann 1963; Friedmann et al. 1977). We excluded as potential hosts two classes of species that are acceptors of cowbird eggs but that are rarely parasitized. The first class was large species, such as Yellow-headed Blackbirds, that cowbirds likely avoid as potential hosts because their own young out-compete cowbird hatchlings in the nest; the second was small species, such as chickadees and swallows, that might be suitable hosts but that are rarely parasitized, presumably because their nests are usually inaccessible

to cowbirds. We also eliminated the following potential hosts because egg addition experiments have shown that most individuals of these species eject cowbird eggs from their nests: Loggerhead Shrike, Gray Catbird, American Robin, Eastern kingbird, Western Kingbird, and Sage Thrasher (Friedmann et al. 1977). Cedar Waxwings and Northern Orioles also eject cowbird eggs but many individuals of these species also accept cowbird eggs, so we included them in our analyses. The point of eliminating these various categories of potential hosts was to generate better estimates of how the rate of parasitism has changed through time as cowbirds became common in Washington.

Records: 120. Burke Museum nest record cards=58 (class cards=6); egg sets=21; field notes=41.

Counties: Benton=3; Chelan=5; Douglas=20; Grant=45; King=6; Kittitas=1; Okanogan=3; Pierce=5; Spokane=13; Whatcom=1; Whitman=15; Yakima=2 (County not recorded for one record).

First-egg dates: Earliest 26 April (Julian day 116); latest 7 July (Julian day 188).



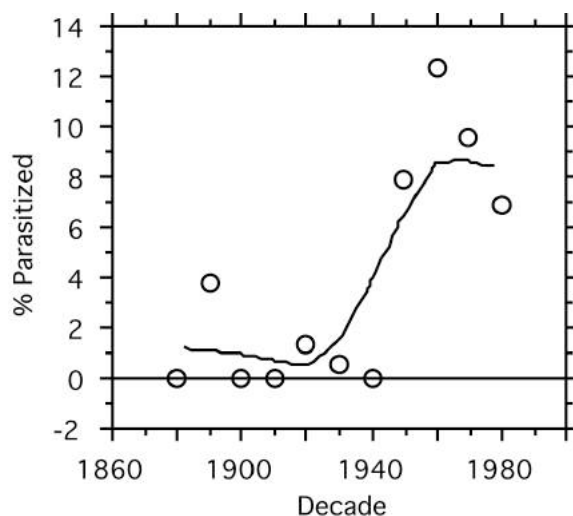
Compared to other species the remarkable thing about this distribution is the sudden onset and cessation of laying by cowbirds, and the constancy of parasitism throughout the season. We have no interpretation of the sudden start and stop in laying, but the constant rate of laying throughout the season likely reflects the freedom from parental investment beyond the production of eggs.

There are relatively few records of cowbird parasitism from western Washington ($n=12$). The timing of laying was not significantly different for eastern and western Washington.

Changes in Rates of Parasitism: Cowbirds were first recorded in western Washington in the 1950's. While cowbirds have been recorded from eastern Washington since the late 1800's, they were uncommon in eastern Washington until the 1960's. When Gordon Orians began working on blackbirds in the Potholes area in the 1960's cowbirds were sufficiently unusual that seeing one merited mention in daily field notes. Rohwer observed a dramatic increase in the numbers of cowbirds during the 1970's while working

on blackbirds in the Winchester Wasteway area along Dodson Road.

The increase in cowbirds throughout Washington is illustrated in changes in the rate of parasitism by decade. For this analysis we included all nests with eggs ($N = 2,268$) for 61 potential hosts from Washington. All the records from the 1880's are from western Washington and predate the arrival of cowbirds there. The single parasitized nest for the 1890's was from eastern Washington. During this decade our files contain records for 9 nests of potential hosts from eastern Washington and 16 nests from western Washington. The dramatic increase in the rate of parasitism in the 1950's and 1960's corresponds to observed increases in cowbird abundance throughout Washington during this period.



Clutch size: Clutch size cannot be evaluated for cowbirds because females usually disperse their eggs into different host nests.

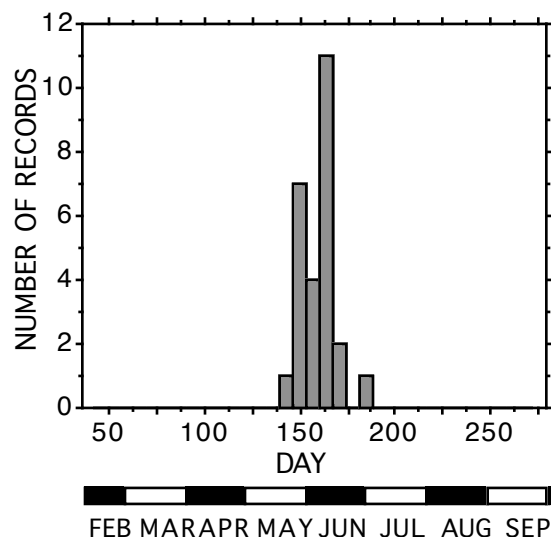
Season and clutch size: Cannot be analyzed (see above).

Bullock's Oriole, *Icterus bullockii*

Records: 26. Burke Museum nest record cards=19; egg sets=5; field notes=2.

Counties: Benton=2; Chelan=2; Douglas=7; Ferry=2; King=2; Kittitas=1; Lincoln=2; Okanogan=1; Spokane=3; Whitman=3; Yakima=1.

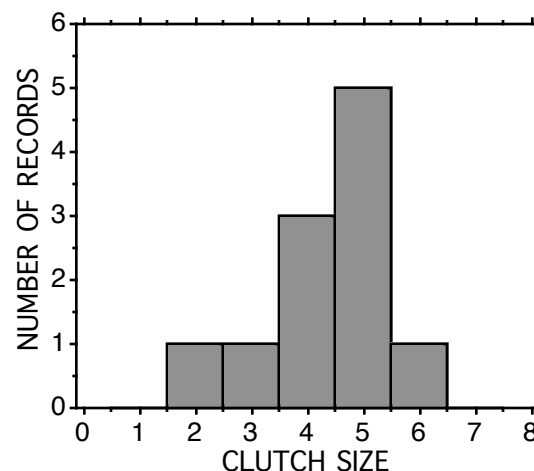
First-egg dates: Earliest 23 May (Julian day 143); latest 7 July (Julian day 188).



The distribution of first-egg dates is unimodal with nearly all records (96%)

falling within a 30-day interval. Clearly second broods are not raised and the lack of right skew in the distribution suggests that renesting after failure seldom occurs.

Clutch size: 11 usable records. Mean 4.4 eggs.



Season and clutch size: Clutch size did not change significantly with season.

FRINGILLIDAE

Gray-crowned Rosy-Finch, *Leucosticte tephrocotis*

2 records, both from field notes:

Whatcom County, **brood**, extrapolated first-egg date 27 June 1933 (Julian day 178).

Whatcom County, **brood**, extrapolated first-egg date 29 June 1933 (Julian day 180).

These records come from the King/Shaw notes. Need to check if they were nests or fledglings.

Pine Grosbeak, *Pinicola enucleator*

1 record: A Burke Museum card for a pair building on 22 June 1968 near Pass Creek Pass, Pend Oreille County, extrapolated first-egg date 26 June (Julian day 177).

Purple Finch, *Carpodacus purpureus*

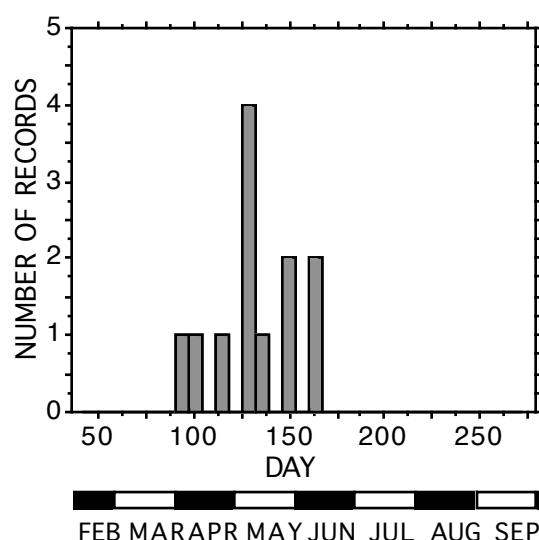
Records: 12. Burke Museum nest record cards=6; egg sets=5; field notes=1.

Counties: King=1; Pacific=2; Pierce= 6; Skamania=1; Whatcom=2.

First-egg dates: Earliest 5 April (Julian day 95); latest 16 June (Julian day 167). With only 12 records, the season is 11 weeks long, so second broods surely occur.

Clutch size: 8 usable records. Mean 4.1 eggs. Distribution: 3 eggs (N=2), 4 eggs (N=3), 5 eggs (N=3).

Season and clutch size: Clutch size did not change significantly with season.



Cassin's Finch, *Carpodacus cassinii*

6 records:

Burke Museum cards:

Yakima County, building nest,
extrapolated first-egg date 3 June 1975
(Julian day 154).

Yakima County, building nest,
extrapolated first-egg date 5 June 1975
(Julian day 156).

Yakima County, building nest,
extrapolated first-egg date 31 May 1977
(Julian day 151).

Kittitas County, building nest,
extrapolated first-egg date 7 June 1985
(Julian day 158).

Collected clutches:

UWBM: WWC EB 1/3: 3-egg set, Walla
Walla County, extrapolated first-egg
date 7 July 1936 (Julian day 188).

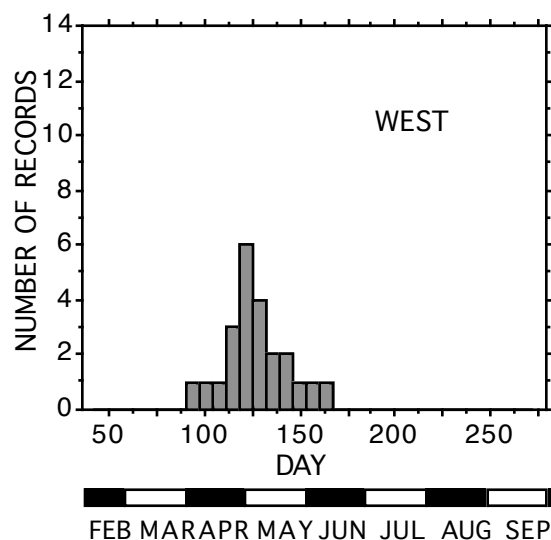
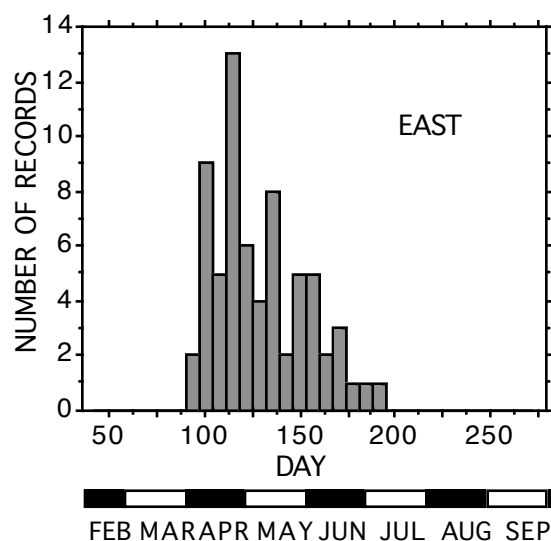
UWBM: WWC EB 1/4: 4-egg set, Walla
Walla County, extrapolated first-egg
date 6 April 1933 (Julian day 96).

House Finch, *Carpodacus mexicanus*

Records: 90. Burke Museum nest record cards=74 (class cards=16); egg sets=10; field notes=6.

Counties: Benton=4; Chelan=1; Douglas=24; Garfield=1; Island=2; King=16; Pierce=3; Spokane=24; Whatcom=2; Whitman=6; Yakima=7.

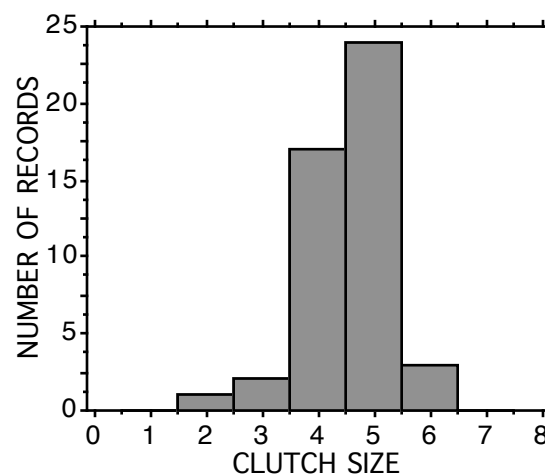
First-egg dates: Earliest 4 April (Julian day 94); latest 13 July (Julian day 194).



The breeding season appears to be much longer in eastern than in western Washington. However, the very short season recorded for western Washington could be due to two sampling problems. House Finches only recently invaded western Washington and were not breeding here during the early days of egg collecting. Further, 16 of the 23 records for western Washington are class cards, virtually all of which come from April and May, before the end of spring quarter in early June.

For eastern Washington the long season and strong right skew in the distribution of first-egg dates suggests two or more broods are raised.

Clutch size: 47 usable records. Mean 4.5 eggs.



Season and clutch size: Clutch size did not change significantly with season.

Parasitism: Of 69 nests with eggs 6 also contained Brown-headed Cowbird eggs. Two were from western Washington in 1959 and 1977, and the remaining four were from eastern Washington in 1961.

Red Crossbill, *Loxia curvirostra*

Recorded to breed in Washington, but no records in our files.

White-winged Crossbill, *Loxia leucoptera*

Recorded to breed in Washington, but no records in our files.

Pine Siskin, *Carduelis pinus*

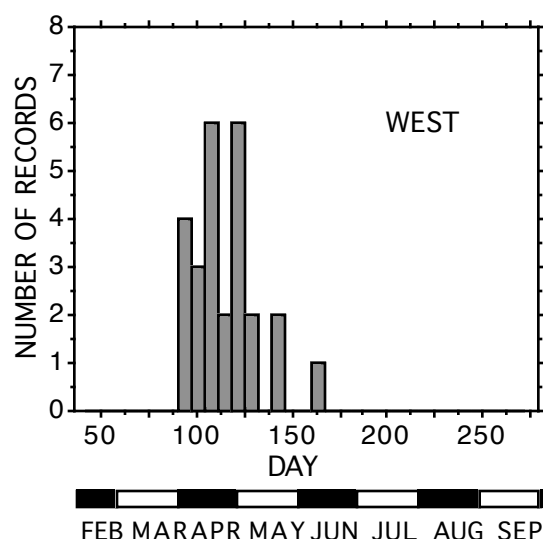
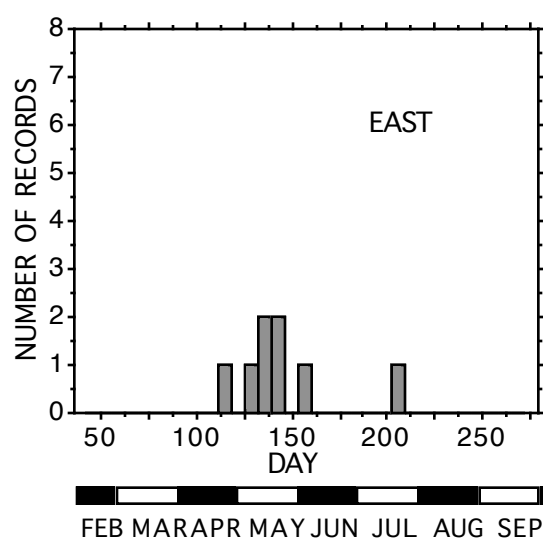
Records: 34. Burke Museum nest record cards=8 (class cards=1); egg sets=18; field notes=8.

Counties: Douglas=2; Grays Harbor=1; King=3; Pierce=22; Spokane=4; Whitman=2.

First-egg dates: Earliest 2 April (Julian day 92); latest 23 July (Julian day 204). In eastern Washington (N=8) the median first-egg date was 16 May (Julian day 136), while for western Washington (N=26) it was 21 April (Julian day 111). This difference is highly significant, and not driven by nests above 2000' in eastern Washington (Mann-Whitney test, $p = 0.002$).

Clutch size: 26 usable records. Mean 3.6 eggs. Distribution: 3 eggs (N=11), 4 eggs (N=14), 5 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



Lesser Goldfinch, *Carduelis psaltria*

Recorded to breed in Washington, but no records in our files.

American Goldfinch, *Carduelis tristis*

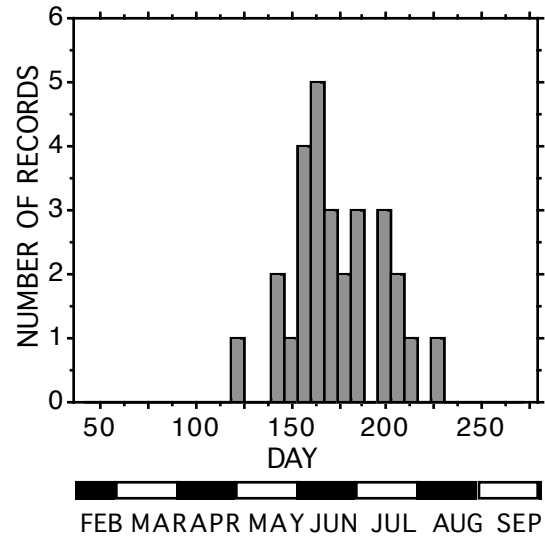
Records: 28. Burke Museum nest record cards=10; egg sets=13; field notes=5.

Counties: Clark=1; King=7; Pierce=9; Snohomish=1; Spokane=3; Whatcom=1; Whitman=5; Yakima=1.

First-egg dates: Earliest 1 May (Julian day 121); latest 13 August (Julian day 225). The 15-week season of nest initiation and the right skew in the distribution of first-egg dates suggests two broods are common.

Clutch size: 16 usable records. Mean 4.9 eggs. Distribution: 4 eggs (N=7), 5 eggs (N=5), 6 eggs (N=3), 7 eggs (N=1).

Season and clutch size: Clutch size did not change significantly with season.



Evening Grosbeak, *Coccothraustes vespertinus*

Recorded to breed in Washington, but no records in our files.

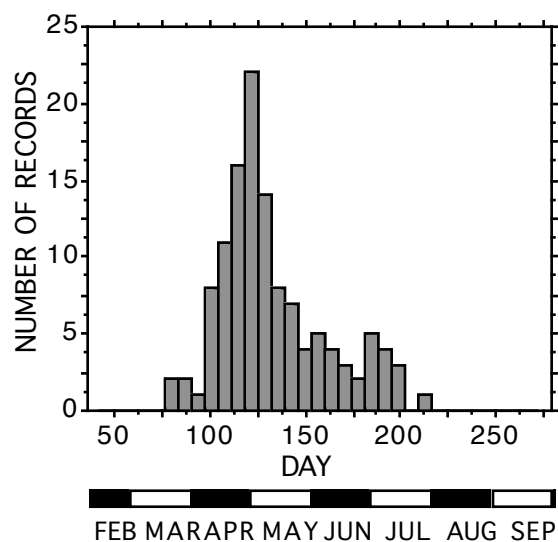
PASSERIDAE

House Sparrow, *Passer domesticus*

Records: 122. Burke Museum nest record cards=84 (class cards=31); egg sets=23; field notes=15.

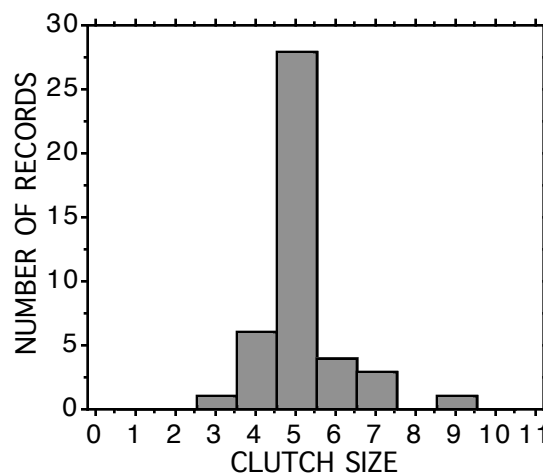
Counties: Benton=7; Douglas=1; Grays Harbor=1; King=59; Pacific=1; Pierce=3; Snohomish=3; Spokane=25; Whatcom=4; Whitman=15; Yakima=3.

First-egg dates: Earliest 19 March (Julian day 78); latest 30 July (Julian day 211).

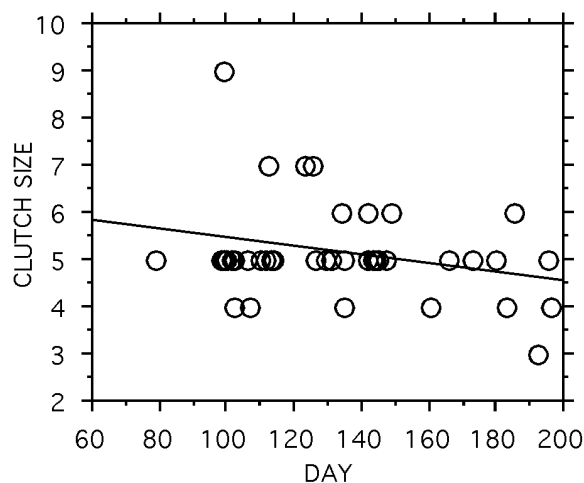


First-egg dates did not vary by region or elevation in Washington. The very long season of nest initiation (133 days) and the right skew in the distribution of first-egg dates suggests multiple broods are common.

Clutch size: 43 usable records. Mean 5.1 eggs.



Season and clutch size: Clutch size did not change significantly with season ($r^2=0.076$).



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