WESTERN BIRDS

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Western Specialty:
Golden-cheeked Woodpecker

Photo by Desmond Sieburth of Los Angeles, California:
Golden-cheeked Woodpecker (*Melanerpes chrysogenys*)
San Blas, Nayarit, Mexico, 30 December 2016
Endemic to western mainland Mexico from Sinaloa south to Oaxaca, the Golden-cheeked Woodpecker comprises two well-differentiated subspecies. In the more northern *M. c. chrysogenys* the hindcrown of both sexes is largely reddish with only a little yellow on the nape, whereas in the more southern *M. c. flavinuchus* the hindcrown is uniformly yellow, contrasting sharply with the forehead (red in the male, grayish white in the female). The subspecies intergrade in Nayarit. Geographic variation in the Golden-cheeked Woodpecker has not been widely appreciated, perhaps because so many birders and ornithologists are familiar with the species from San Blas, in the center of the zone of intergradation.

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Front cover photo by © Mark Chappell of Riverside, California: Purple Sandpiper (*Calidris maritima*) at Salt Creek Beach, northeast shore of the Salton Sea, Riverside County, representing a first record for California. When this photo was taken on 10 April 2016 the bird was well into first alternate plumage but showed no sign of black on the belly, as seen on the similar Rock Sandpiper (*C. ptilocnemis*) at this stage of molt.

Back cover "Featured Photos" by Amar Ayyash of Orland Park, Illinois: American Herring Gull (*Larus argentatus smithsonianus*) at Chicago, Illinois, 22 November 2015. Note the contrast between the inner five primaries, patterned as in the definitive plumage, with the outer primaries, patterned as in the second plumage cycle. The inner primaries may have been replaced during a prealternate molt.

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THE 42nd ANNUAL REPORT OF THE CALIFORNIA BIRD RECORDS COMMITTEE: 2016 RECORDS

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ABSTRACT: From its last report through 2016 the California Bird Records Committee reached decisions on 174 records involving 167 individuals of 68 species and two species groups, endorsing 139 records of 152 individuals. The first accepted state records of the Purple Sandpiper (*Calidris maritima*), Jouanin's Petrel (*Bulweria fallax*), and Buff-breasted Flycatcher (*Empidonax fulvifrons*) are outlined in this report, as is the acceptance of the Oriental Greenfinch (*Chloris sinica*) to the main list based on reconsideration of a record that was previously not accepted. These additions bring California's total list of accepted species to 667, of which 11 represent established introductions. Other notable records detailed in this report include the state's second Swallow-tailed Kite (*Elanoides forficatus*), third Great Frigatebird (*Fregata minor*), and fourth Common Pochard (*Aythya ferina*).

This 42nd report of the California Bird Records Committee (CBRC), a committee of Western Field Ornithologists, summarizes evaluations of 174 records involving 167 individuals of 68 species and two species groups. The committee accepted 139 of the 174 records, involving 134 individuals of 63 species and two species groups, for an acceptance rate of 79.9%. A record is considered accepted if it receives no more than one "not accept" vote from the nine voting members if the identification is considered questionable, or no more than two "not accept" votes if natural occurrence is considered questionable. We consider 17 records of 12 individuals to represent returning or continuing birds that were accepted previously. Thirty-four records, involving 32 individuals of 20 species and two species groups, were not accepted because the identification was not considered to be substantiated; one record involving one individual was not accepted because its natural occurrence was questionable. For review, reports of multiple individuals

together are given the same record number; we report the total number of accepted individuals, which may be different from the number of accepted records. Although most of the records in this report are of birds documented in 2016, a few are earlier.

Since the period covered by this report, the committee has accepted first California records in 2017 of the Eurasian Wryneck (*Jynx torquilla*), Kermadec Petrel (*Pterodroma neglecta*), Citrine Wagtail (*Motacilla citreola*), and Band-rumped Storm-Petrel (*Oceanodroma castro*), the details of which will be published in the next (43rd) report, and in 2018 of the Tropical Parula (*Setophaga pitiayumi*), which will be published in the 44th report. These additions, as well as the decision by the American Ornithological Society (2017) to treat Thayer's Gull (formerly *L. thayeri*) as a subspecies of the Iceland Gull (*Larus glaucoides*), bring the California list to 672 species. Potential additions to the state list currently being considered are of the Eastern Meadowlark (*Sturnella magna*) and European Golden-Plover (*Pluvialis apricaria*). Recent changes to the review list were the addition of the Ruddy Ground-Dove (*Columbina talpacoti*) at the committee's annual meeting in January 2016 and removal of the Little Gull (*Hydrocoloeus minutus*), Magnificent Frigatebird (*Fregata magnificens*), and Magnificent/Great/Lesser Frigatebird (*Fregata magnificens/minor/ariel*) at the January 2017 meeting.

Species-account headings are organized with English and scientific names first, followed in parentheses by the total number of individuals accepted for California (as of this report) and the number of new individuals accepted in this report. Following the heading are accounts for records accepted (as applicable), followed by records not accepted because the identification was not established, the date or location was uncertain, or the natural occurrence was questionable (as applicable). A double asterisk (**) following the number of accepted records indicates that the species has been reviewed only during a restricted period, so the number of accepted records does not represent the total number of records for the state. When the observer(s) who originally discovered the bird provided documentation, their initials are listed first, in italics, followed by the initials of subsequent observers supplying documentation. A dagger (†) following an observer's initials indicates submission of a photograph, (Sk) indicates submission of a sketch, (§) indicates submission of audio recordings, (‡) indicates submission of a video, and (#) precedes a specimen number. The absence of a symbol following the observer's initials indicates the submission of a written report without other documentation. Age terminology follows that of CBRC (2007). Definitions of abbreviations and additional details regarding minutiae of formatting may be found in previous CBRC reports, all available at the CBRC's website, www.californiabirds.org, and in CBRC (2007; wfopublications.org/Rare_Birds/FM/Explanation-Additional_Info.html). A map of, and abbreviations for, counties in California are at http://wfopublications.org/Rare_Birds/MAPS/Map1.html. Also available at the CBRC's website are the California bird list, the review list, an online form for submitting documentation for review species, committee news, recent photos of rare birds, the CBRC's bylaws, a form for querying the CBRC database, and all annual reports.

Observers are encouraged to submit documentation for all species on

the CBRC's review list to the CBRC's secretary (e-mail: secretary@californiabirds.org) or via www.californiabirds.org. Documentation of all CBRC records is archived at the Western Foundation of Vertebrate Zoology (www.wfvz.org) and is available for public review by appointment.

EMPEROR GOOSE *Anser canagicus* (95, 1). One was at Seven Mile Slough in Isleton, SAC, 9–27 Mar 2016 (*DSk*, TAB†, CC†, AWL†, AM†; 2016-015). Numbers reaching California have been decreasing in recent years, particularly inland. Prior to 1980, 36% of records were away from the coast; since 1980, only 21% have been inland.

COMMON POCHARD *Aythya ferina* (4, 1). An adult male associated with a large flock of Canvasbacks (*A. valisineria*), Redheads (*A. americana*), and Ring-necked Ducks (*A. collaris*) on and near Freshwater Lagoon, HUM, 20 Dec 2016–13 Jan 2017 (*JA*, TAB†, ACo†, EAE†, RF†, KCK, GMcC, MR†, CR; 2016-133). This species is a rare straggler to western Alaska, with records from Homer and Middleton I. being the easternmost; elsewhere in North America, aside from California's four, the only acceptable records are from Quebec and Saskatchewan.

RUDDY GROUND-DOVE *Columbina talpacoti* (111**, 2). A male with Inca Doves (*C. inca*) at Newberry Springs, SBE, 3 Dec 2016 (*AdR*, *RRo*†; 2016-130) and a female in Bishop, INY, 11 Dec 2016 (*CHo*†, *RHow*†; 2016-131) were the only two reported in 2016. This small dove, first recorded in California in 1978, was found nesting in 2003, so it was removed from the review list at the end of that year. Beginning in 2006, however, numbers in California plummeted, and the resident populations disappeared, so the species was placed back on the review list in 2016.

RUBY-THROATED HUMMINGBIRD *Archilochus colubris* (18, 0). IDENTIFICATION NOT ESTABLISHED: A hummingbird at a feeder in Stockton, SJ, 12 Sep 2015 (2015-177) was reported as a first-fall female Ruby-throated. The entire upperparts were described as "bronzy green," and the photographs show an *Archilochus*, but they do not show the shape of the outermost primaries, especially p10. Therefore, seven committee members were unwilling to endorse the record. The written documentation and photos constituting the report of a female or first-fall male at Pt. Reyes National Seashore, MRN, 17 Sep 2016 (2016-149) did not provide enough detail on the shapes of the primaries to eliminate the Black-chinned Hummingbird (*A. alexandri*).

BROAD-BILLED HUMMINGBIRD *Cynanthus latirostris* (94, 4). An adult male visited a feeder near Lake Murray, SD, 12–22 Feb 2016 (*MMa*, M & PT†; 2016-005), a female was at Lake Tamarisk in Desert Center, RIV, 17 Sep 2016 (RA†, JS†; 2016-082), an adult male visited a feeder in Granite Hills, SD, 7 Nov 2016 (*JTr*†, *YT*; 2016-116), and a first-year male frequented a yard in El Cajon, SD, 26 Dec 2016–9 Mar 2017 (*CKS*†‡; 2016-147).

LESSER SAND-PLOVER *Charadrius mongolus* (15, 1). One in first basic plumage at North Beach in Pt. Reyes National Seashore, MRN, 18–29 Oct 2016 (*ML*†, MVB†, DK-B†, MR†, RWR†; 2016-105) established the latest date for the species in California. Most of the state's Lesser Sand-Plovers have occurred between late June and mid-August, with four in September and only two in October, the latest previously being 22 Oct 2003.

UPLAND SANDPIPER *Bartramia longicauda* (32, 1). One was at Cerro Coso College in Ridgecrest, KER, 9 Jun 2016 (*AH*†; 2016-043).

BAR-TAILED GODWIT *Limosa lapponica* (45, 1). On the basis of Peter Pyle's feather-by-feather comparison of photos, the committee concluded that three sightings of the Bar-tailed Godwit represented the same individual. After appearing at Bolinas Lagoon, MRN, 11–16 Aug 2016 (*PP*†, PB†, MB, RLeB†, MR†, SBT†; 2016-063),

the bird was seen 80 km to the southeast near the Don Edwards NWR Environmental Education Center, SCL, 21–29 Aug 2016 (*CJo*†, WGB†, BAM†, RWR†, AlR†, MMR†; 2016-064), before moving 50 km back to the northwest to Middle Harbor Shoreline Park, ALA, 3–5 Sep 2016 (*ST*†, AM†; 2016-073).

HUDSONIAN GODWIT *Limosa haemastica* (54, 1). One was at Clam Beach and the spit at the mouth of Mad River Slough on Humboldt Bay, HUM, 20–26 May 2016 (*RF*†, EF†; 2016-035). Although most of California's fall records are from the coast between Del Norte and Marin counties, including nine from Humboldt County, only three of the 12 spring records have been coastal.

CURLEW SANDPIPER *Calidris ferruginea* (50, 1). An adult in alternate plumage was at the San Diego River mouth, SD, 10 Jul 2016 (*JB*†; 2016-053).

RED-NECKED STINT *Calidris ruficollis* (22, 5). Single adults were at Estero Bluffs SP, SLO, 30 Jun 2016 (*TME*†, BBo†, HE†, KP†, CAM†, EW†; 2016-051) and "Frank's Dump" at the Hayward Regional Shoreline in Hayward, ALA, 10–26 Jul 2016 (*VR*†, AM†, JMo†, JMi, MR†, JCS†, SBT†; 2016-052). One in its second fall was at the mouth of Jacoby Creek on Humboldt Bay, HUM, 14 Aug 2016 (*RF*†, EAE†, EF†; 2016-062). Single juveniles were at the Eel River estuary, HUM, 1 Sep 2016 (*TE*†; 2016-071) and at the San Jacinto Wildlife Area, RIV, 5–9 Sep 2016 (*AEM*†, TAB†, BED, JLD†, CAM†, GMcC; 2016-072; Figure 1). Only one record of a juvenile, at Davis, YOL, 30 Aug 2009 (2009-144) had been accepted for California previously (Pyle et al. 2011).

PURPLE SANDPIPER *Calidris maritima* (1, 1). One at Salt Creek Beach on the northeast shore of the Salton Sea, RIV, 25 Mar–17 Apr 2016 (*BED*†, *CAM*†; ARA†, DB†, TAB†, MAC†, JLD, RHol†, KZK†, GMcC, CMcG†, RLM†, DWN†, DR†, LS†, MStr†, DVanP†; 2016-028; cover photo and Figure 2) molted from first basic plumage to at least a partial first alternate plumage during its more than three-week stay. Amazingly, one in first alternate plumage 800 km to the north at Kehoe Beach on Pt. Reyes, MRN, 25 Apr 2016 (*ML*†‡; 2016-029) was the same bird, as the committee concluded from Peter Pyle's comparison of feather patterns in photos. This shorebird nests in the high Arctic and winters along North Atlantic coasts, in North America mainly from Newfoundland south to Georgia. Small numbers occur in fall around the Great Lakes and in winter along the north coast of the Gulf of Mexico. The species is very rare inland away from the Great Lakes, but it has been recorded in central Kansas at Wilson Lake (23 Dec 2015; *N. Am. Birds* 70:205), in central Oklahoma at Lake Overholser (9–12 Dec 1977; *Bull. Okla. Ornithol. Soc.* X1:1–4) and Lake Carl Blackwell (6–8 Jan 2013; *N. Am. Birds* 67:297), and in two counties of central Texas (Lockwood and Freeman 2004). Vagrants have been photographed farther west along the Bow River near Calgary, Alberta (9–10 May 2013; *N. Am. Birds* 67:471), at the Freezeout Lake Wildlife Management Area near Great Falls, Montana (12 Nov 2015; *N. Am. Birds* 70:74–75), at Dillon Reservoir near Silverthorne, Colorado (16–31 Dec 2016; http://coloradobirdrecords.org/Reports/SpeciesDetail.aspx?id=505), and at Sandy Hollow Reservoir near St. George, Utah (28 Nov–4 Dec 2010; *N. Am. Birds* 65:136). A juvenile collected on the shore of the Beaufort Sea at Pt. Barrow, Alaska (29 Sep 1990; Gibson and Kessel 1992) and one photographed in Victoria, British Columbia (30 Dec 2016–17 Apr 2017; https://bcfo.ca/bc-bird-records-committee-sightings-database/) represent the westernmost records, one photographed on the Mexican Pacific coast at San Blas, Nayarit (28 Dec 2014–23 Mar 2015; *N. Am. Birds* 69:298), the southernmost record.

LITTLE STINT *Calidris minuta* (28, 4). One in dull alternate plumage (and thus possibly in its first spring) was near Alviso Marina County Park, SCL, 20 Apr–6 May 2016 (*WB*†, KG†, JMo†, MP†, MR†, RWR†, SCR†, JCS†, GZ†‡; 2016-023). An alternate-plumaged adult was at Tolowa Dunes State Beach, DN, 1 Aug 2016 (*CR*;

Figure 1. This juvenile Red-necked Stint (*Calidris ruficollis*) at the San Jacinto Wildlife Area, Riverside County, 6 Sep 2016 (2016-072) shows the long primary projection that distinguishes it from a Western Sandpiper (*C. mauri*). The wing coverts and tertials have buffy to pale gray edges and darkish centers rather than the rufous edges and black centers of the juvenile Little Stint (*C. minuta*).

Photo by Thomas A. Benson

Figure 2. On 27 Mar 2016, when this photo was taken, this Purple Sandpiper (*Calidris maritima*) at Salt Creek Beach on the east shore of the Salton Sea, Riverside County (2016-028), was in mostly basic plumage, with dirty yellow rather than brighter orangish legs, so virtually identical to a Rock Sandpiper (*C. ptilocnemis*).

Photo by Larry Sansone

2016-061), and single juveniles were at Centerville Slough, HUM, 31 Aug 2016 (*TE*†, KMB, SEM†, SBT†; 2016-070) and at the San Jacinto Wildlife Area, RIV, 9–15 Oct 2016 (*AEM*†, AB†, TAB†, MAC†, BED†, CAM†, GMcC, RLM†, JTS†; 2016-100; Figure 3).

WHITE-RUMPED SANDPIPER *Calidris fuscicollis* (30, 0). IDENTIFICATION NOT ESTABLISHED: Photographs of a bird at Laguna Salada in Pacifica, SM, 27 Jun 2016 (2016-054) did not confirm that it was a White-rumped Sandpiper.

SPOTTED REDSHANK *Tringa erythropus* (5, 0). IDENTIFICATION NOT ESTABLISHED: One was reported at south San Diego Bay, SD, 6 Mar 2016 (2016-013). Five Spotted Redshanks were found in California between 1983 and 1989, but none have been confirmed since then.

MARSH SANDPIPER *Tringa stagnatilis* (2, 0). An adult in alternate plumage was at the Vic Fazio Yolo Bypass Wildlife Area, YOL, 16–23 Apr 2016 (TAB†, AM†, MR†, RAR†, JCS†; 2016-022). By a 5–4 vote, the committee considered it probably different from the first-year bird that was ~32 km away near Dixon, SOL, 9–13 Apr 2014 (2014-032; Singer et al. 2016). But when a Marsh Sandpiper appeared at the Vic Fazio Yolo Bypass Wildlife Area 15–21 Apr 2018 (details to be published in a future report), the CBRC voted to consider all three of these records as representing the same bird.

THICK-BILLED MURRE *Uria lomvia* (51, 1). One in basic plumage was 14 km west-southwest of Bodega Head, SON, 9 Oct 2016 (*MVB*†, MR†, MSte†; 2016-099). IDENTIFICATION NOT ESTABLISHED: A photo of a dead and partially decomposed murre (specimen not salvaged) found at Rodeo Beach, MRN, 17 Sep 2015 (2015-115) failed to convince enough committee members it was of a Thick-billed. This species was more numerous in the 1900s, but the CBRC has accepted only 13 records since 2000.

Figure 3. This juvenile Little Stint (*Calidris minuta*) at the San Jacinto Wildlife Area, Riverside County, 9 Oct 2016 (2016-100) shows the long primary projection associated with the Asiatic stints, with the tips of the longest primaries extending noticeably beyond the tip of the tail. The rufous edges and black centers of the scapulars, wing coverts, and tertials distinguish the Little Stint from the similar juvenile Red-necked Stint (compare Figure 1). Also evident on this stint is the split supercilium and white "braces" (British for "suspenders") on the upperparts.

Photo by Anthony E. Metcalf

BLACK GUILLEMOT *Cepphus grylle* (0, 0). IDENTIFICATION NOT ESTABLISHED: One was reported in flight over the ocean 41 km west of Laguna Pt., MEN, 25 May 2016 (2016-044). A good description of salient characters by the experienced observer suggested that the identification may have been correct, but because of the brevity of the observation and the observer's inability to discern the underwing color, the committee refrained from accepting what would have been a first state record. Although the Black Guillemot is regular in small numbers along the coast of extreme northwestern Alaska, one photographed in Ketchikan 13–17 Dec 2012 (*N. Am. Birds* 67:322–326) provides by far the southernmost record in the Pacific.

BLACK-HEADED GULL *Chroicocephalus ridibundus* (28, 0). The committee considers an adult at Oasis, RIV, 30 Dec 2016–3 Mar 2017 (*CMcG*†, TAB†, MAC†, AEM†, GMcC, RLM†, JTS†; 2016-136) to be the same adult as was in this area 8–14 Jan 2014 (2014-003; Singer et al. 2016).

LITTLE GULL *Hydrocoloeus minutus* (123, 5). A first-cycle bird at Los Peñasquitos Lagoon, SD, 7 Apr 2016 (*BM*†, CJa†, JTS†, SES†Sk; 2016-019), an adult at Salt Creek Beach on the east shore of the Salton Sea, RIV, 12–23 Apr 2016 (*CMcG*, JKC, RLM†, AEM†, JS†; 2016-020A and 2016-025), and a first-spring bird also at Salt Creek Beach, RIV, 12–16 Apr 2016 (*RLM* Sk, KAR, MStr; 2016-020B and 2016-024) were moving north through California with migrant Bonaparte's Gulls (*Chroicocephalus philadelphia*). A juvenile over the open ocean about 32 km west of Bean Hollow, SM, 11 Sep 2016 (*AJ*†, AM†, MP†, DSS†, GT†; 2016-081) and another still retaining much of its juvenile plumage at the settling ponds at the mouth of the Santa Clara R., Ventura, VEN, 23 Nov 2016 (*ST*†, DK-B†; 2016-125) were fall migrants. The CBRC has removed this species from its review list and does not review records after 2016.

ICELAND GULL *Larus glaucoides* (24, 1). A very pale first-cycle bird at Redbud Park, LAK, 17 Dec 2016 (*FEH*†; 2016-138), with a rounded head and petite bill, was believed by all but one member to fall well within the range of the subspecies *kumlieni*. IDENTIFICATION NOT ESTABLISHED: Plumage and structural characters of single first-winter birds reported at Moss Landing, MTY, 9 Feb 2016 (2016-009), Lower Otay Reservoir, SD, 18 Jan–25 Feb 2016 (2016-010), and Lucchesi Park in Petaluma, SON, 23 Feb–14 Mar 2016 (2016-008) were believed by most members to fall outside the range of the Iceland Gull as the species was defined in 2016 (i.e., subspecies *glaucoides* or *kumlieni*). With Thayer's Gull (formerly *L. thayeri*) now treated as a subspecies of the Iceland Gull (American Ornithological Society 2017), the CBRC no longer, as of 1 January 2017, reviews records of the Iceland Gull.

SLATY-BACKED GULL *Larus schistisagus* (58, 0). An adult at Miller–Knox Regional Park, CC, 18–20 Jan 2016 (LH†; 2016-002) was the same bird with a leucistic primary covert on the right wing seen in the same area 8–15 Feb 2013 (2013-021; Rottenborn et al. 2016) and 11 km to the southwest in Sausalito, MRN, 23 Jan 2013 (2013-010). IDENTIFICATION NOT ESTABLISHED: A reported adult on Southeast Farallon I., SF, 8 Nov 2011 (2011-283) was too pale on the mantle for this species.

KELP GULL *Larus dominicanus* (1, 0). An adult was at the San Gabriel Coastal Spreading Grounds, Pico Rivera, LA, 4–5 Feb 2016 (*JFG*†, TAB†, KLG†, CAM†, GMcC, LS†; 2016-004), then 600 km to the northwest on Southeast Farallon I., SF, 26 Apr 2016 (*KW*†, RB; 2016-030), and then 55 km to the southeast at the mouth of Pilarcitos Creek in Half Moon Bay, SM, 30–31 May 2016 (*MDeF*†, JMo†, RWR†, GZ††; 2016-039). Primarily on the basis of the wingtip pattern, the committee considered all three to be the same bird as the one found at three locations on the central California coast in April and May 2015 (2015-033, -034, and -037; Searcy et al. 2018). Although recorded along the Gulf of Mexico coasts of Texas and Louisiana (where it has bred), twice on the Atlantic coast (in Maryland and Newfoundland), and

as single individuals well inland in Indiana, Ohio, Colorado, and Ontario (Howell *et* al. 2014), California's wandering individual is the only one thus far found along the Pacific coast of the United States.

RED-TAILED TROPICBIRD *Phaethon rubricauda* (44, 1). One approximately 350 km west-southwest of Pt. Arguello, SBA, 20 Nov 2014 (*TJ*†; 2014-184) augments nine previously accepted records from 2014. This species appears to be somewhat regular over very deep water well off California.

ARCTIC LOON *Gavia arctica* (13, 0). IDENTIFICATION NOT ESTABLISHED: A loon at Camanche Reservoir, SJ, 26 Oct 2016 (2016-139) was documented by very distant photos, and seven committee members did not endorse the identification as an Arctic Loon. All but one of California's accepted records of this species are coastal.

YELLOW-BILLED LOON *Gavia adamsii* (102, 2). A basic-plumaged bird was at Heron's Head Park, SF, 24 Jan 2016 (*BG*†, *ASH*; 2016-001), and an alternate-plumaged adult flew by Battery Godfrey, SF, 8 Oct 2016 (*HC, PSa*; 2016-143). IDENTIFICATION NOT ESTABLISHED: The majority of the committee found the single photo of a bird on Monterey Bay, MTY, 24 Mar 2002 (2002-227) insufficient to identify it as a Yellow-billed Loon.

WEDGE-RUMPED STORM-PETREL *Oceanodroma tethys* (13, 1). One undergoing its second prebasic molt was found dead on the south spit of Humboldt Bay, HUM, 1 May 2016 (*DK-B;* HSU #9649; 2016-031; Figure 4); see Kammerichs-Berke (2018) for additional details. From its measurements, the bird is of the smaller subspecies that breeds off the coast of Peru, *O. t. kelsalli*, rather than the larger nominate subspecies that breeds on the Galapagos Islands. All of California's other Wedge-rumped Storm-Petrels that have been measured, a specimen found in Carmel, MTY, 21 Jan 1969 (Yadon 1970; 1977-123), as well as two captured on Southeast Farallon I., SF, in spring 2015, have been *kelsalli* also (Searcy *et* al. 2018).

JOUANIN'S PETREL *Bulweria fallax* (1, 1). An adult captured at Arch Pt. on Santa Barbara I., SBA, 1 Jun 2016 (*AJB*†, *JHo*†; 2016-058; Figure 5) represents the first accepted record for California, North America, and the United States outside of the Hawaiian Islands. This large *Bulweria* petrel is a species of the Indian Ocean and a vagrant to the central Pacific (Howell 2012); it has reached the northwest Hawaiian Islands four times (Pyle and Pyle 2017). This bird was captured during nighttime mist netting of Ashy Storm-Petrels (*Oceanodroma homochroa*). Recognizing that it was too large for a storm-petrel, but unsure of the identification at the time, the banders photographed the bird and measured its culmen and tarsus. Various outside experts with extensive experience with *Bulweria* and the similar *Pseudobulweria* reviewed the record and unanimously endorsed the identification as a Jouanin's Petrel on the basis of overall size and tarsal measurement (33.0 mm). The bird was greater in overall bulk and bill depth, and with a longer tarsus, than a Bulwer's Petrel (*B. bulwerii*), and its tarsus was too short for a Fiji Petrel (*Pseudobulweria macgillivrayi*) or Mascarene Petrel (*P. aterrima*). A reported Jouanin's Petrel photographed off Santa Cruz County, 12 Sep 2015 (2015-176) is still under review.

MAGNIFICENT FRIGATEBIRD *Fregata magnificens* (75**, 24). A photo by an unknown observer of an immature near the east end of Santa Cruz I., SBA, 7 Jul 2015 (2015-081) made its way to Peter Gaede, who forwarded the photo to the CBRC. Following an incursion in 2015, 2016 was another good year for this species, by the standards of the 21st century, with single birds at Morro Bay, SLO, 15 May 2016 (*JSR;* 2016-033), Santa Barbara I., SBA, 30 May 2016 (*BAS*†; 2016-040), Torrey Pines State Reserve/La Jolla, SD, 31 May 2016 (*TABl*†; 2016-041), San Diego Bay, SD, 25 Jun 2016 (*NC*†; 2016-047), La Jolla, SD, 28 Jun 2016 (*PEL*, *GN*†; 2016-048), Crowley Lake, MNO, 26 Jul 2016 *(RZ*†, NJO†, RO†; 2016-057), Bolsa Chica

Figure 4. Molting Wedge-rumped Storm-Petrel found dead on the south spit of Humboldt Bay, Humboldt County, 1 May 2016 (2016-031). This photo shows the species' very long white uppertail coverts (with black shafts) that extend a substantial distance along the tail.

Photo by Deven Kammerichs-Berke

Ecological Reserve, ORA, 2 Aug 2016 (*L-SV*†, DoH; 2016-059) and 27 Sep 2016 (*L-SV*†; 2016-090), Cypress, ORA, 24 Aug 2016 (*RRa*†; 2016-068), and Big Bear Lake, SBE, 27 Aug 2016 (*LT*, DS†; 2016-069). The only report of multiple birds was of 13 individuals observed at the south end of the Salton Sea, IMP, 11 Sep 2016 (*GN*†, TAB†; 2016-077). IDENTIFICATION NOT ESTABLISHED: The committee did not accept six records as pertaining to the Magnificent Frigatebird, primarily owing to a lack of detail eliminating other frigatebird species: these records (2016-046, 2016-050, 2016-060, 2016-065, 2016-111, and 2016-137) were re-evaluated as Magnificent/Great/Lesser Frigatebirds (see below). The CBRC has removed the Magnificent Frigatebird from the review list and does not review records after 2016.

GREAT FRIGATEBIRD *Fregata minor* (3, 1). One in its second or third cycle at Pt. Pinos, MTY, 2 Nov 2016 (*PG*†, *SH*†, DR; 2016-140; Figure 6) represents the third record for California and the second from Monterey County. The only Great Frigatebird recorded in North America, outside of Mexico and California, is a November 1975 specimen from Oklahoma (Tomer et al. 1996). Noteworthy features that

Figure 5. The first Jouanin's Petrel accepted for California was captured on Santa Barbara Island, Santa Barbara County, 1 Jun 2016 (2016-058) during nighttime mist netting for Ashy Storm-Petrels (*Oceanodroma homochroa*). There are no previous records of this Indian Ocean species for North America or for anywhere in the Pacific Ocean, apart from four records from the Hawaiian Islands.

Photo by Joe Howard

distinguished the Pt. Pinos bird from a Magnificent Frigatebird of similar age included the rusty-buff feathers on the throat and upper breast, the relatively extensive white axillary spur, and the pattern of the belly (line between black and white more rounded than pointed posteriorly). It was distinguished from the Lesser Frigatebird (*F. ariel*) by the large size, the less extensive white axillary spur, the longer and more slender bill, and a longer tail.

MAGNIFICENT/GREAT/LESSER FRIGATEBIRD *Fregata magnificens/minor/ariel* (17**, 7). Frigatebirds accepted as members of this group included single birds at the Ventura settling ponds, VEN, 21 Jun 2016 (*JHo*†; 2016-046A), Pt. Dume, LA, 21 Jun 2016 (*CyS*; 2016-050A), 1.5 km west of Mission Bay, SD, 10 Jul 2016 (*CE*†; 2016-060A), 1.5 km offshore from Dana Pt. Harbor, ORA, 13 Jul 2016 (*ACa*‡; 2016-056), Isla Vista, SBA, 31 Jul 2016 (*JC*†; 2016-094), Beaumont, RIV, 20 Sep 2016 (*RLM Sk*; 2016-137A), and North Shore, RIV, 24 Oct 2016 (*RLM*†; 2016-111A). IDENTIFICATION NOT ESTABLISHED: Two at the Ventura settling ponds, VEN, 18 Jun 2016 (2016-065A) were not described adequately for acceptance even as unidentified frigatebirds. The CBRC has removed this category from the review list and does not review records after 2016.

MASKED BOOBY *Sula dactylatra* (23, 1). One was 8.5 km south-southwest of Southeast Farallon I., SF, 24–25 Aug 2016 (*JRol*†; 2016-074).

NAZCA BOOBY *Sula granti* (8, 5). A subadult was captured at Oceanside, SD, 30 Oct 2015 (*MA*†, *BF*†; 2015-167) and taken to Sea World for rehabilitation before being released 23 Feb 2016. Another subadult at Pt. Pinos, MTY, 1 Feb 2016 (*BLS*†; PF†) was initially not accepted (2016-003), then reviewed and accepted as a Masked/

Nazca Booby (2016-003A), then re-evaluated and accepted as a Nazca (2016-003B). This record reflects the committee's learning the distinction between subadults of the Masked and Nazca Boobies. We solicited outside expertise on identification of more challenging young birds, and the best current information suggests that each species' characteristic bill color (orange to rose or reddish at the base in the Nazca and yellowish to yellow-green throughout in the Masked) starts to develop at an age of 4–8 months (Pyle 2008). These colors can be subtle on young birds, and CBRC members differed in how they detected or interpreted the bill color of some birds, even when looking at the same photos at the same time. In addition, colors are portrayed differently on different computer monitors. Adding to the complication of bill color is hybridization between the two species; for example, a few mixed pairs and birds with bills intermediate in color have been observed on Clipperton I., 1080 km southwest of Punta San Telmo, Michoacán, Mexico (Pitman and Jehl 1998). Nazca Boobies appear to be increasing in the northern portion of the breeding range off west Mexico, which may increase the incidence of hybrids (R. L. Pitman pers. comm.).

Single adult Nazca Boobies were over Soquel Canyon 15 km south of Seal Rock, SCZ, 16 Jul 2016 (*EHa*†, *CHa*†, *DR*†, *CoS*†; 2016-055), 112 km west-southwest of Pt. Sur, MTY, 3 Sep 2016 (*RLP*†; 2016-089), and 38 km southeast of Santa Catalina I., LA, 15 Sep 2016 (*RL*†; 2016-087A). This species, first recorded in California in 2013, has shown a remarkable influx into the state the past few years, and has now been recorded as far north as Alaska (Gibson et al. 2018). IDENTIFICATION NOT ESTABLISHED: A booby in its second cycle 11 km west-southwest of Pt. Loma, SD, 1 Sep 2015 (2015-088) was not accepted because most members were not convinced that the adult bill color was yet showing, or at least evident in the photos. The record was re-evaluated as of a Masked/Nazca Booby (see below).

MASKED/NAZCA BOOBY *Sula dactylatra/granti* (23, 2). In addition to the second-cycle bird at Pt. Pinos, MTY, 1 Feb 2016 (*BLS*†, PEF†; 2016-003A), which was ultimately accepted as a Nazca Booby as described above, single boobies of similar age were 11 km west-southwest of Pt. Loma, SD, 1 Sep 2015 (*JL*†, *SSc*†, *SW*†; 2015-088A) and on a boat off San Diego, SD, 31 Aug 2015 (*PD*†; 2015-163).

RED-FOOTED BOOBY *Sula sula* (29, 3). Individuals in their first or second cycle were 24 km south-southeast of San Clemente I., LA, 6 Sep 2016 (*RLP*†; 2016-091) and at Imperial Beach, SD, 13 Dec 2016 (*PEL*; 2016-129). One in its first cycle at Pt. Loma, SD, 3–7 Oct 2016 was taken into captivity by Sea World; it was released off Pt. Loma on 27 Dec 2016 and remained in the area until 4 Jan 2017 (*PSi*†, CK†; 2016-098). This species' recent incursion into California waters parallels that of the Brown Booby (*S. leucogaster*), Masked Booby, and Nazca Booby.

TRICOLORED HERON *Egretta tricolor* (64**, 2). Single adults were at San Diego Bay, SD, 18 Apr 2016 (GMcC, GN†; 2016-021) and the Tijuana R. estuary, SD, 17 Dec 2016–15 Mar 2017 (TAB†, MJB†, GMcC, JTS†; 2016-132).

GLOSSY IBIS *Plegadis falcinellus* (35, 1). An alternate-plumaged adult was along the Los Angeles River at Sepulveda Dam, LA, 24 May–5 Jun 2016 (*MSten*†, TAB†, JHa†, MMe†, JTS†; 2016-037). IDENTIFICATION NOT ESTABLISHED: Single birds at the Yolo Bypass Wildlife Area, YOL, 2–8 Apr 2016 (2016-017) and at Baker, SBE, 3–4 Jun 2016 (2016-042) showed potential indications of hybridization with the White-faced Ibis (*P. chihi*).

BLACK VULTURE *Coragyps atratus* (10, 0). The committee concluded that the following records, all of an adult, represent the same bird that was in Sonoma and Marin counties Mar 2014–Jul 2015 (2014-027; Searcy et al. 2018): Pt. Reyes, MRN, 11–18 Jun 2016 (*LK*, TG†; 2016-045); Bodega Bay, SON, 22 Oct–8 Nov 2016 (*SSo*†; CD, EHu†, SL†, RLeB†, RAR†, SBT†; 2016-122); and Sebastopol, SON, 29 Dec 2016–8 Mar 2017 (KAH; 2016-144). Likewise, an adult at San Luis

Obispo, SLO, 17 Dec 2016–20 Mar 2017 (HE†, KP†; 2016-135) was apparently the same as one observed in San Luis Obispo County since 2009 (2009-156; Pyle et al. 2011). IDENTIFICATION NOT ESTABLISHED: One reported from the Tijuana R. valley, SD, 21 Feb 2016 (2016-007) was quite distant and observed only briefly.

SWALLOW-TAILED KITE *Elanoides forficatus* (2, 1). California's second Swallow-tailed Kite was initially photographed at the Tijuana R. estuary, SD, 22 Apr 2016, being last seen east of the Tijuana Slough NWR visitors' center at 09:37. At 13:35 the same day, it was seen ~86 km to the north at Camp Pendleton, SD, 0.8 km southeast of the intersection of Las Pulgas Road and Stuart Mesa Road (*DD, DG†, JRu, SV*; 2016-027).

COMMON BLACK HAWK *Buteogallus anthracinus* (11, 1). One in its first spring was just north of the main entrance to Camp Pendleton, between Interstate 5 and Vandergrift Boulevard, near Oceanside, SD, 2 Mar 2016 (*JMM*†; 2016-011), being the first recorded in San Diego County.

SNOWY OWL *Bubo scandiacus* (62, 1). A first-winter male was at the south spit of Humboldt Bay, HUM, 18–19 Feb 2016 (EAE†, EF†, RF†, DK-B†; 2016-006).

ELF OWL *Micrathene whitneyi* (8**, 0). On 2 Apr 2016 an Elf Owl was at the confidential location in Riverside County where the species has nested since 2010 (*DVP*§; 2016-016; Searcy et al. 2018).

CRESTED CARACARA *Caracara cheriway* (20, 1). A first-fall immature was at the Tijuana R. estuary, SD, 16 Oct 2016 (ND†, PEL, GMcC, PCR†; 2016-103). IDENTIFICATION NOT ESTABLISHED: A photograph of a distant bird near Marina, MTY, 4 Dec 2016 (2016-146) did not show the subject well enough to establish that it was a Crested Caracara.

DUSKY-CAPPED FLYCATCHER *Myiarchus tuberculifer* (106, 3). One at La Mirada Creek Park, LA, 6 Apr–2 May 2016 (*JR*§, MAS†; 2016-018) and 1 Dec 2016–22 Mar 2017 (TAB†§; 2016-134) had returned for its 9th and 10th consecutive winters; the bird was first recorded 27 Feb–7 Apr 2008 (2008-040; Pike and Compton 2010). A Dusky-capped Flycatcher at Coyote Hills Regional Park, ALA, 3 Nov 2016 (*JTi*†; 2016-114) was the second for Alameda County and provided a rare non-coastal record for northern California. Other single individuals were at Los Osos, SLO, 1–3 Nov 2016 (*BW*†, *FW*†; 2016-126) and Pt. Pinos, MTY, 14–16 Nov 2016 (DR†; 2016-118).

SULPHUR-BELLIED FLYCATCHER *Myiodynastes luteiventris* (19, 1). One at Carpinteria Creek, SBA, 30 Sep 2016 (*JEL*, *LP*; 2016-142) fit the pattern of occurrence typical of this species in California. With the exception of one at Gazos Creek, SM, 14 Jun 1998 (1998-106; Erickson and Hamilton 2001), all records are from the period 13 Sep–20 Oct.

THICK-BILLED KINGBIRD *Tyrannus crassirostris* (23, 0). One returned for its 7th winter to Otay Valley at the mouth of Poggi Canyon in Chula Vista, SD, 16 Oct 2016–8 Apr 2017 (MJB, BFl†, GMcC, KR†; 2016-104), and another returned for its 4th winter to Horsethief Canyon Park, LA, 31 Oct 2016–6 Mar 2017 (TAB†§; 2016-123).

GREATER PEWEE *Contopus pertinax* (41, 0). The committee concluded that one at Balboa Park, SD, 23 Nov 1986–28 Mar 1987 (REW†; 1986-801) was the same as one previously accepted 21 Dec 1985–26 Jan 1986 (1986-025; Bevier 1990), and that one at the same location 18 Oct 1990–29 Mar 1991 (GMcC; 1990-801) was the same as the one previously accepted 20 Feb–30 Mar 1988 (1988-092; Pyle and McCaskie 1992).

BUFF-BREASTED FLYCATCHER *Empidonax fulvifrons* (1, 1). One in its first

Figure 6. A second-cycle or third-cycle Great Frigatebird at Pt. Pinos, Monterey County, 2 Nov 2016 (2016-140) represented the third record for California (and the second from Monterey County) and one of only four for North America.

Photo by Skye Haas

spring at Galileo Hill, KER, 15 May 2016 (*MFr*†, *NF*; 2016-034; Figure 7) was the first Buff-breasted Flycatcher recorded in California. Arizona has records as far northwest as the Prescott area (Phillips et al. 1964, www.eBird.org), and populations in Arizona, southwestern New Mexico, and northwestern Mexico are migratory, so the bird at Galileo Hill was apparently a spring overshoot. Its occurrence in mid-May closely matches that of the northernmost recent record for Arizona, in Yavapai County 13 May 2005 (www.eBird.org) and an accepted Colorado record, for El Paso County 19 May 1991 (Janos 1998).

WHITE-EYED VIREO *Vireo griseus* (77, 1). A first-fall immature was along San Jose Creek in Goleta, SBA, 7 Sep 2016 (*HPR*†; 2016-079).

BLUE-HEADED VIREO *Vireo solitarius* (82, 3). Single fall migrants were at Bella Vista Open Space Preserve, SBA, 10 Sep 2016 (*DT*†, DMC, PK; 2016-080), at Fort Rosecrans National Cemetery, Point Loma, SD, 18 Sep 2016 (*GN*†; 2016-083), and along Pecho Road in Morro Bay, SLO, 29–30 Sep 2016 (*WK*†, TME†, MDH†; 2016-093). All but nine (six of wintering birds and three in spring) of California's records are of fall migrants. IDENTIFICATION NOT ESTABLISHED: A majority of committee members concluded that photographs of vireos at Famosa Slough, San Diego, SD, 22 Oct 2016 (2016-108) and along the San Gabriel River in Lakewood, LA, 26 Oct 2016 (2016-109) could represent Cassin's Vireos (*V. cassinii*). Cassin's Vireos are in their freshest, brightest plumage in fall, and distinguishing bright male Cassin's and dull female Blue-headed Vireos relies on assessment of age/sex characters. The CBRC continues to take a conservative approach to accepting records of other than the most boldly marked Blue-headed Vireos.

CAVE SWALLOW *Petrochelidon fulva* (12, 1). An adult at the Santa Fe Dam Recreation Area, LA, 30 Nov–1 Dec 2016 (*JSF*†, DAB Sk, TAB†; 2016-127) was only the second recorded in California away from the south end of the Salton Sea,

Figure 7. California's first Buff-breasted Flycatcher was at Galileo Hill, Kern County, 15 May 2016 (2016-034).

Photo by Mary Freeman

the other also being in Los Angeles County, on 28 Nov 2015 (2015-142; Searcy et al. 2018).

WINTER WREN *Troglodytes hiemalis* (22, 1). One was at Crystal Spring, INY/SBE, 5–7 Nov 2016 (TAB†§; 2016-113). IDENTIFICATION NOT ESTABLISHED: One reported at Galileo Hill, KER, 6 Oct 2016 (2016-128) was photographed but not audio-recorded. Distinguishing the Winter and Pacific (*T. pacificus*) wrens on the basis of photos can be challenging, as the apparent brightness or coldness of the plumage varies considerably, especially depending on whether the bird was sunlit or in the shade. Only a single call note was heard from this bird, so a majority of committee members expressed reservations about accepting the record.

DUSKY WARBLER *Phylloscopus fuscatus* (16, 2). One at Oyster Pt. in South San Francisco, SM, 24–26 Sep 2016 (*RST*, WGB†, EAE†§, MR†, SBT; 2016-086) was the earliest recorded in California by three days. Another was at Huntington Central Park, ORA, 8 Oct 2016 (*DA*†, *RS*†; BED; 2016-096). Both represented first county records. All accepted records are from the period 24 Sep–3 Nov.

WOOD THRUSH *Hylocichla mustelina* (33, 2). Single individuals were at Big Springs, MNO, 15 Oct 2016 (*MiS*; 2016-101) and along the San Luis Rey R. in Oceanside, SD, 18 Dec 2016 (*JK*†; 2016-145), the latter being only the third recorded in California in December.

RUFOUS-BACKED ROBIN *Turdus rufopalliatus* (24, 4). Four single individuals, at Chiriaco Summit, RIV, 13–17 Oct 2016 (*RA*†, LMB†; 2016-097), Cactus City, RIV, 23 Oct 2016 (*SJ*†; 2016-107), Shoshone, INY, 8 Nov 2016 (*CAM*†, *SLS*†; 2016-115), and Lake Tamarisk Golf Club, RIV, 12 Nov–12 Dec 2016 (*RA*†, TAB†; 2016-121) were at locations typical for the Rufous-backed Robin in California. Before 2016, no more than two individuals had been recorded in a single season.

WHITE WAGTAIL *Motacilla alba* (32, 2). Single alternate-plumaged males of

the subspecies *lugens* at the Pismo Creek mouth, SLO, 22 Apr 2016 (TME†, HE†, BKS†; 2016-026; Figure 8) and at Lake Tolowa and Lake Earl, DN, 10 May 2016 (*CR*, GA†, TK†, SEM†; 2016-032) were different individuals because of differences in the shape of the black bib. California had only four prior records of spring migrants, all during the period 26 Apr–22 May.

HAWFINCH *Coccothraustes coccothraustes* (0, 0). NATURAL OCCURRENCE QUESTIONABLE: One came aboard a ship en route from Busan, South Korea, to San Pedro, LA, on 11 May 2016. It entered California waters west-southwest of Pt. Piedras Blancas, SLO, 17 May 2016 and remained on the ship at least until it entered the Santa Barbara Ship Channel later that day (*PL*†; 2016-150). A Brambling (*Fringilla montifringilla*), a Rustic Bunting (*Emberiza rustica*), and an Oriental Turtle-Dove (*Streptopelia orientalis*) were also reported on the ship during the transoceanic crossing, though it is not clear whether any of those birds entered California waters. The observer put out seed for birds on the boat, which may have encouraged the Hawfinch to stay with the ship. The CBRC generally does not accept records of birds that have relied on humans for transportation or sustenance to enable them to enter California, even if the bird was not physically restrained.

ORIENTAL GREENFINCH *Chloris sinica* (1, 1). A female or immature male at Arcata, HUM, 4 Dec 1986–3 Apr 1987 (SFB, BBa, JLD, KH†, JMH†, JML, CAM, GMcC, JMo, DR; 1986-450A) was not accepted on the grounds of questionable natural occurrence during its initial evaluation that extended through four rounds from 1987 to 1992 (Patten and Erickson 1994). Members generally agreed that the bird was likely of the northeastern race *kawarahiba*, a requisite for consideration as a naturally occurring vagrant because the other subspecies are largely sedentary. Factors weighing against the bird's natural occurrence included the lack of a pattern of long-distance vagrancy in the Old World, the absence of New World records away from the western Aleutian Islands (which are not far from the range of *kawarahiba*), and known instances of captivity in the United States, including rumors of releases in California. During that evaluation, the record gained five or six votes for acceptance during each round but never mustered enough for CBRC endorsement, and the species was placed on the supplemental list on the basis of the Arcata record.

Since 1992, the Oriental Greenfinch has been recorded at least twice in North America away from the western Aleutians—at St. Paul I., Alaska, 13 Jun 1996 and in Victoria, British Columbia, 9 Nov 2015 (https://bcfo.ca/brc-round-14-additional-round-12-accepted-records/). Another was photographed at François Lake in northern British Columbia 27 May 2009 (http://fliphtml5.com/lpyn/yutd/basic), though that record was not accepted by the British Columbia Bird Records Committee on the grounds of questionable natural occurrence because the photos were too distant to allow the subspecies to be determined or the condition of the feathers (e.g., wear) to be assessed (https://bcfo.ca/bc-bird-records-committee-sightings-database/). Although these additional records barely establish a pattern of vagrancy, they provided sufficient new information for the CBRC to reconsider and unanimously accept the Arcata record (thereby moving the species from the supplemental list to the main list) on the first round. Reasons for acceptance included the precedent for vagrancy set by the St. Paul I. and British Columbia records and the pattern of vagrancy to western North America shown by such other Asian species as the Brown Shrike (*Lanius cristatus*), Rustic Bunting, and Brambling, a pattern that has become clearer since the CBRC's initial evaluation of the Arcata record. Also important were the perspective that *kawarahiba* winters largely to the north of the most intense east Asian cage-bird trade and the low probability that the Arcata bird was an escapee, based on the low numbers of captive Oriental Greenfinches thought to be in North America at the time (a 10 March 2005 query of the International Species Information System yielded a total of eight captive Oriental Greenfinches at zoos and other participating institutions in North America: five in Quebec and three in Manitoba).

COMMON REDPOLL *Acanthis flammea* (178, 2). Single individuals were at Hayward, ALA, 16 Mar 2016 (*JTo*; 2016-038) and San Clemente I., LA, 27 Jun 2016 (*JTS*†; 2016-049). Previously, all California records were from the period 23 Nov–12 Mar, except for one for April and three for May. The occurrences in 2016 were also unusual in that there was no irruption of the redpoll that year.

SMITH'S LONGSPUR *Calcarius pictus* (11, 1). One on San Clemente I., LA, 23 Sep 2016 (*JTS*†; 2016-085; Figure 9) was the first recorded in Los Angeles County and the first in southern California away from the deserts of the interior.

FIELD SPARROW *Spizella pusilla* (16, 1). One was along the San Gabriel River in El Monte, LA, 19 Nov 2015 (*SM*; 2015-174). IDENTIFICATION NOT ESTABLISHED: A bird at the Mendota Wildlife Area, FRE, 8–9 Jan 2016 (2016-014) was not seen well enough for acceptance as a Field Sparrow as reported.

STREAK-BACKED ORIOLE *Icterus pustulatus* (9, 1). One, probably a male in its first fall, at the Lake Tamarisk Golf Club, Desert Center, RIV, 23–24 Oct 2016 (*RA*†, CAM, GMcC, JST†; 2016-112) was the first recorded in Riverside County.

RUSTY BLACKBIRD *Euphagus carolinus* (50**, 3). The photo initially submitted in support of a female at Furnace Creek Ranch, INY, 5 Nov 2015 (*BC*†; 2015-151A) did not allow adequate magnification for members to be able to confirm certain features. Subsequently, the original image was obtained, confirming the identification as a Rusty Blackbird. A male was in Stockton, SJ, 14 Feb 2016 (*DGY*†; 2016-012). Single females along Sarina Road near Smith River, DN, 15 Nov 2016 (*LB*†; 2016-120) and at Fort Dick, DN, 10 Jan–18 Feb (*LB*†, TK†, CR; 2017-014) were accepted as the same individual.

COMMON GRACKLE *Quiscalus quiscula* (98, 1). Single females along Sarina Road near Smith River, DN, 15 Nov 2016–23 Feb 2017 (*LB*†; 2016-119) and 18 Apr 2017 (*TK*†; 2017-031) were accepted as the same individual. IDENTIFICATION NOT ESTABLISHED: A male blackbird at Owens Lake, INY, 16 Sep 2016 (2016-102) lacked the head and body color of a Common Grackle but appeared more robust than a typical Brewer's Blackbird (*Euphagus cyanocephalus*). It may have been a hybrid between a Brewer's Blackbird and a Great-tailed Grackle (*Quiscalus mexicanus*), a combination also suspected to be responsible for another report (not accepted) of the Common Grackle, at Santa Maria, SBA 8 May–5 Jul 1999 (1999-122; Rogers and Jaramillo 2002).

WORM-EATING WARBLER *Helmitheros vermivorum* (132, 3). Individuals were at the University of California, Riverside, RIV, 30 Oct–6 Nov 1975 (*SWC*; 1975-801), along Deer Creek, ED, 4–5 Jun 2016 (*TE*§, MaS; 2016-124), and at Oso Flaco Lake, SLO, 11 Aug 2016 (*TAB*; 2016-066). The Deer Creek bird was a first for El Dorado County and the northernmost for California away from the coast.

GOLDEN-WINGED WARBLER *Vermivora chrysoptera* (78, 1). A male was in the Finkbeiner Forest in Bishop, INY, 22 May 2016 (*CG*, JHe, DeH†, BJK, NJO†; 2016-036).

BLUE-WINGED WARBLER *Vermivora cyanoptera* (51, 1). One at the Angelo Coast Range Reserve, MEN, 27 Sep 2016 (*SB*; 2016-095) furnished the first record for Mendocino County.

MOURNING WARBLER *Geothlypis philadelphia* (155, 4). Single individuals were at Southeast Farallon I., SF, 23 Aug 2016 (JD†, JRT†; 2016-067) and (a different bird) 8–12 Sep 2016 (JRT, JD†; 2016-075), Galileo Hill, KER, 10–11 Sep 2016 (*ET*†, TAB†, BS†; 2016-076), and Chadbourne Gulch, MEN, 25 Sep 2016 (*RF*†, *RJK*†; 2016-092), the latter providing a first record for Mendocino County. IDENTIFICATION NOT ESTABLISHED: One reported at Carpinteria, SBA, 24

Figure 8. This male White Wagtail of the black-backed subspecies *lugens* was at the Pismo Creek mouth, San Luis Obispo County, 22 Apr 2016 (2016-026).

Photo by Brad K. Schram

Oct 2016 (2016-110) was seen in poor light, and several aspects of the description did not fit this species well enough for acceptance, particularly for such a late date.

CAPE MAY WARBLER *Setophaga tigrina* (41**, 1). One was at the Regional Water Quality Control Plant, Palo Alto, SCL, 15–17 Oct 2016 (*SCR*†, WGB†, GZ†; 2016-106). IDENTIFICATION NOT ESTABLISHED: Most members concluded that

Figure 9. The first Smith's Longspur in southern California away from the interior desert region was on San Clemente I., Los Angeles County, 23 Sep 2016 (2016-085).

Photo by Justyn T. Stahl

the details on one reported at Pt. Reyes, MRN, 11 Oct 2016 (2016-117) were too brief for acceptance.

SCARLET TANAGER *Piranga olivacea* (150, 1). One was at Andrew Molera SP, MTY, 22 Oct 2001 (*CMcF*; 2001-229). The CBRC does not review records of this species later than 2007.

MISCELLANEOUS

The long-staying Northern Gannet (*Morus bassanus*; 2012-058) first seen at Southeast Farallon I., SF, 25 Apr 2012 (Pike et al. 2014), and the female Common Black Hawk (2008-053) resident near Santa Rosa, SON, since 14 May 2005 (Iliff et al. 2007), were both still present through 31 Dec 2016. The Curve-billed Thrasher (*Toxostoma curvirostre*; 2012-091) found at Starlite Estates near Bishop, INY, on 11 Jun 2012 (Pike et al. 2014) was last reported 4 Apr 2016.

CORRIGENDUM

In the CBRC's 40th report (Singer et al. 2016), the date span for the Broad-billed Hummingbird at Montecito, SBA (2014-060), published as 26–27 Mar 2014, should have been 26–*29* Mar 2014.

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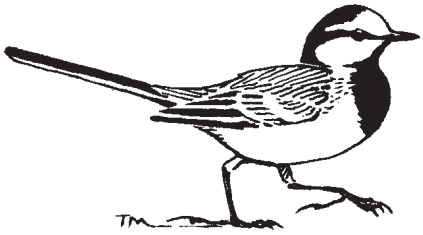

EGG DESTRUCTION BY MALES IN THE WESTERN GREBE AND CLARK'S GREBE

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ABSTRACT: Destruction of eggs in nests of a bird's own species has been reported in many species of birds, including three species of grebes of the family Podicipedidae. We report for the first time four incidents of egg destruction by Western Grebes (*Aechmophorus occidentalis*) and three by Clark's Grebes (*Aechmophorus clarkii*) in mixed breeding colonies at Clear Lake, Lake County, California, from 2014 to 2017. All incidents occurred during the late stage of nesting within a colony. Five incidents of egg destruction occurred at three recently vacated nests in which the previous eggs had been removed by mammalian predators <24 hours earlier; the other two incidents occurred at nests with an unknown history. Egg destruction was perpetrated only by males. The eggs may have been destroyed to usurp nests or to prevent brood parasitism or cuckoldry. Because none of the eggs or adults were marked and no tissue samples were taken, it was impossible to be certain of the relationships among adults and eggs, and whether egg destruction was intraspecific or interspecific.

Many species of birds, across a broad spectrum of taxonomic groups, destroy eggs in other birds' nests or even in their own nests. Some birds routinely destroy eggs of their own species, which is a form of infanticide (Hrdy 1979, Veiga 2000). Others, such as several wrens of the family Troglodytidae (Brewer 2010), routinely destroy the eggs of other species. The circumstances under which egg destruction occurs and its proximate causes are complex, and numerous hypotheses for it have been proposed. These may be classified into broad categories such as consumption, resource competition, and sexual selection (e.g., Hrdy 1979, Spooner et al. 1996, Veiga 2000).

Intraspecific egg destruction has been reported in at least three species of grebes (family Podicipedidae). The eggs of the Great Crested Grebe (*Podiceps cristatus*) are sometimes kicked unintentionally out of a nest (Simmons 1955), but Konter (2008a,b) reported three instances of two eggs intentionally kicked out of a nest and an egg pushed out of a nest during a fight with a conspecific. McAllister (1958) reported finding many Eared Grebe (*P. nigricollis*) eggs removed from nests and destroyed by a small hole pecked into each egg, which she attributed to conspecifics, but over two years of observation never saw a grebe pecking an egg. Perkins et al. (2005) reported several instances of eggs deliberately removed from nests by incubating Horned Grebes (*P. auritus*), and Summers et al. (2009) reported a nest destroyed by a conspecific.

In this article we provide details representing the first reports of intraspecific and interspecific egg destruction in the Western Grebe (*Aechmophorus*

Figure 1. A male Clark's Grebe pecking at an egg (above) and the punctured egg floating in the water beside the nest 6.7 minutes later (below) at the north end of Clear Lake on 1 September 2014 (see incidents 1 and 2 for further details). Photos by motion-activated camera.

occidentalis) and Clark's Grebe (*A. clarkii*). We describe the conditions under which egg destruction occurs, evaluate its frequency of occurrence, identify the sex of perpetrators, and attempt an explanation.

STUDY SITE AND METHODS

Study Site and Subjects

Clear Lake is a large (180 km^2), relatively shallow (depth ≤18 m), and highly eutrophic lake in Lake County, northern California (39° 01′ N, 122° 46′ W). Two major wetlands are associated with the lake: its largest tributary, Rodman Slough, at the northwest end of the lake, and its outlet, Cache Creek, which meanders through Anderson Marsh at the southeast end of

the lake. The natural history of the lake and the anthropogenic footprint on it have been summarized by Suchanek et al. (2003).

The Western Grebe and Clark's Grebe are socially monogamous species (Storer and Nuechterlein 1992) that nest together and occasionally hybridize in mixed colonies at Clear Lake and its associated wetlands (Feerer and Garrett 1977, Robison et al. 2015, Hayes and Turner 2017, Hayes et al. 2018). The grebes build floating nests of aquatic vegetation, which are attached to emergent vegetation along the shore or submerged vegetation in open water up to 1 km from shore, along the margins of the lake and its associated wetlands where the water is shallow.

Methods

We recorded data on the incidence of egg destruction incidentally while studying the grebes' breeding ecology. During the breeding seasons (April–September) from 2010 to 2017, we searched for grebe colonies at Clear Lake and its associated wetlands once or twice (rarely three times) during most weeks, averaging 21 trips per year (range 15–32). We usually searched for grebe nests from a canoe (most days, 5–25 km/day) or motorboat (1–3 times per year), although a few areas close to a road were searched by vehicle or by foot during each trip. To estimate the rate of natural and anthropogenic disturbances, including egg destruction, we recorded the amount of time that we spent observing grebe activities in active breeding colonies with eggs.

From 2014 to 2017 we deployed up to six motion-activated cameras (Bushnell Trophy Cam Bone Collector RTAP Night Vision and Bushnell Trophy Cam HD Aggressor No Glow) within active colonies to study the grebes' breeding activities and the fate of their eggs. Each camera was bolted to a U-channel post, which was pushed by hand into the soft bottom of the lake, and aimed at a focal nest with one or more eggs 3–5 m away. For each camera we recorded the number of hours from the time when a grebe first returned to a focal nest after the camera was placed to the time of the final photo when a grebe was on a nest with one or more eggs.

Subsequently, we scrutinized photos of activities at grebe nests for evidence of egg destruction. In photos documenting egg destruction we attempted to identify the pertinent species of each individual by its plumage and soft-part coloration, and the sex of each individual by its bill size, which is notably longer and stouter in the male (Ratti and McCabe 1983, Storer and Nuechterlein 1985, 1992, Hartman et al. 2016) and easily distinguished in photos. None of the eggs or adults were marked and no tissue samples were taken.

RESULTS

The number of grebe nests recorded per year ranged from 888 to 5936, with a mean of 3073 (SD = 1988, n = 8 years). We observed only one incident of egg destruction, by a Western Grebe, during 283 hours of observation of active grebe colonies. Our cameras documented six additional incidents at four nests, including three by Western Grebes and three by Clark's Grebes, during 11,309 hours of monitoring at 122 nests, for an average of one

incident per 1885 hours. To provide the full context for each incident, we briefly summarize the history of activities at each nest.

Incidents 1 and 2

A camera recorded two incidents of a male Clark's Grebe tossing an egg off a nest within 1.5 hours on 1 September 2014, in a colony of 4721 nests at the northwest end of Clear Lake. The colony had been active for >2.5 months (first two nests found on 13 June). At 10:08 on 31 August, an American Mink (*Neovison vison*) consumed two eggs previously incubated by a male Clark's Grebe and a female Western Grebe. A pair of Western Grebes subsequently took turns resting on the nest, and the female laid an egg between 14:08 and 14:17. A second egg was laid by an unknown female (not visible in a photo) between 18:52 and 20:50. The following morning (1 September) at 07:13 a male Clark's Grebe was incubating until it was replaced by a female Western Grebe at 07:26, when both birds were briefly on the nest. The male returned to the nest to incubate between 07:29 (female still on nest) and 07:46 (male only on nest). At 07:58 the male Clark's Grebe stood up and appeared to be grasping an egg, which was apparently tossed off the nest (tossing not photographed), and resumed incubating the remaining egg until it stood up at 08:01, when only one egg was visible, and the female replaced the male on the nest. Subsequent photos revealed the egg was missing and not merely covered with nesting material.

The female remained on the nest, was briefly joined by the male at 08:52, and departed the nest at 08:53, revealing a second recently laid egg on the nest. The male returned to incubate at 08:56 and departed at 09:12. At 09:22 the male returned, pecked a hole in an egg, and tossed the egg into the water, where it floated near the nest for at least 9 minutes (Figure 1). The male preened itself on the nest until it departed at 09:30, when the female arrived. Both birds took turns incubating the remaining egg throughout the day (six shifts for the male, seven for the female), during which the male repeatedly added vegetation to the nest and defended the nest from passing grebes, until the last photo of the day with the male on the nest at 17:13. The next photo, taken at 07:36 the following morning (2 September), revealed the female behind the empty nest and a broken egg floating about 1 m away in the water. Unfortunately the camera did not document how the egg was broken and wound up in the water. The nest was empty when we arrived at 08:08 and moved the camera to another nest. It is uncertain whether the male that attacked the eggs was the same male that incubated the eggs, maintained the nest, and chased away passing grebes.

Incident 3

On 3 July 2016, the colony of 799 nests at Rodman Slough had been active for more than 1 month (the first 37 nests were found on 10 June). At 15:33 Turner observed a Western Grebe of undetermined sex toss an egg off a nest about 7 m away from us. The egg was the only one on the nest. The history of the nest was unknown.

Figure 2. A male Western Grebe standing above an egg (above) and the punctured egg at the edge of the nest 31 seconds later (below) at Anderson Marsh, Clear Lake, on 23 June 2017 (see incident 7 for further details). Photos by motion-activated camera.

Incidents 4 and 5

Also at Rodman Slough, a male Western Grebe destroyed two eggs in one nest within a period of 7.5 hours on 5 July 2016. At 22:25 the previous night a Northern Raccoon (*Procyon lotor*) preyed upon two eggs on the nest. The nest was unattended until 09:28, when a Western Grebe was in the water and facing the nest while another Western Grebe was swimming away. Only 18 seconds later an egg appeared on the nest while two Western Grebes were in the water, facing the nest, and a third Western Grebe, apparently a female by its small bill, was swimming away with a wake behind it, indicating it had just deposited the egg and departed the nest. Just 23 seconds later a male Western Grebe climbed up onto the nest and appeared to grab the egg with its beak, and 17 seconds later the egg was missing while the male was still on the nest and another grebe was arriving at the nest.

Subsequently a pair of Western Grebes copulated on the empty nest

four times between 12:45 and 15:57. At 16:08, an egg appeared on the nest with a female Clark's Grebe standing above it, as though it had just been laid. At 16:58 the intact egg was partially visible underneath a female Western Grebe sitting on the nest while a male Western Grebe was in the water facing the nest. Just 17 seconds later the egg was still partially visible under the female Western Grebe but it was clearly smashed with the yolk exposed, while the male Western Grebe, presumably the perpetrator, was in the water at the edge of the nest and facing the egg on the nest. The nest was not attended by grebes that evening, and at 22:13 a raccoon inspected the empty nest. During the subsequent 10 days both species copulated on the nest multiple times and multiple were eggs laid, raccoons preying on them repeatedly, but none were incubated by grebes.

Incident 6

On 5 August 2016, again at Rodman Slough, one of our cameras photographed a male Clark's Grebe kicking an egg off a nest. At 03:38 on 3 August, a raccoon preyed upon three eggs that a pair of Clark's Grebes had been incubating the previous day. Subsequently Clark's Grebes copulated on the nest at 06:38, an egg was laid by an unknown grebe species between 08:36 and 08:39, Western Grebes copulated on the nest three times from 11:36 to 17:04, and Clark's Grebes copulated on the nest at 20:02. However, the egg was never incubated. The following day, 4 August, a female Western Grebe and male Clark's Grebe copulated on the nest three times from 14:01 to 14:33 and a second egg was laid by an unidentified grebe between 18:32 and 18:52, but that egg was not incubated either. On 5 August, a pair of Western Grebes attended the nest with two eggs from 07:49 to 07:50, then a pair of Clark's Grebes attended the nest intermittently, often sitting on the eggs as though they were incubating, from 09:30 to 15:17. At 12:56 a male Clark's Grebe was standing on a nest with its left foot between two eggs. Just 1 minute and 43 seconds later only one egg was visible on the nest and the grebe's left foot had moved toward the left, suggesting that it kicked the egg off the nest, intentionally or unintentionally. The second egg disappeared at 15:39, apparently knocked off the nest by a basking Red-eared Slider (*Trachemys scripta elegans*). A male Western Grebe and female Clark's Grebe copulated on the nest four times from 15:52 to 16:11. At 19:07, a female Clark's Grebe laid an egg on the nest and a pair of Clark's Grebes took turns incubating it throughout 6 August and the morning of 7 August, after which we moved the camera to another nest.

Incident 7

On 23 June 2017 at Anderson Marsh, in a colony of 2054 nests, a male Western Grebe smashed an egg and flicked it aside. The colony had been active for >2 months (first eggs and newly hatched chicks found on 7 May; the mean incubation period is 24 days, Storer and Nuechterlein 1992). After we aimed a camera at a nest with a single egg at 11:47, a pair of Western Grebes took turns incubating the egg, with ten shifts by the female and three by the male. At 14:03 the female departed the nest and at 14:04 the male climbed up on the nest, but instead of resuming incubation the male smashed the egg with its bill and flicked the egg to the edge of the nest, where yolk

oozed out of a hole in the egg (Figure 2). After rolling the broken egg into the center of the nest at 14:08, the male sat on the egg until it departed the nest at 14:18. The female returned to the nest at 14:19 and sat on the broken egg until 14:27. After briefly leaving the nest, the female returned at 14:29, pushed the egg to the edge of the nest, and sat down on the nest until it departed at 14:36. The male arrived at 14:55, tossed the broken egg off the nest at 15:00, and departed at 15:04. The male returned again to the empty nest from 15:24 to 15:32 and the female returned from 15:33 to at least 15:41, when the camera's batteries died.

DISCUSSION

This study demonstrates that egg destruction, which was intentional in at least six of the seven incidents, occurs rarely in breeding *Aechmophorus* grebes. Our rate of one incident per 1885 camera-hours is an imprecise measurement of frequency because eggs were often not visible even when present, being covered with nesting material by an adult. Others were taken by predators or vanished under unknown circumstances. Some nests attached to submerged vegetation in open water frequently drifted in and out of view of the cameras, and the cameras varied in their sensitivity to motion, often failing to capture significant events resulting in the disappearance of eggs on a nest. Because egg destruction takes only a few seconds at most and is easily overlooked, it probably occurs more frequently than our few observations suggest, but it is not a common behavior.

Although *Aechmophorus* grebes sometimes engage in reproductive activities at night (Hayes et al. 2018), all incidents of egg destruction occurred during daylight. Five incidents occurred at three recently vacated nests from which the previous eggs had been removed by mammalian predators <24 hours earlier (incidents 1–2 and 4–6). The remaining two incidents (3 and 7) occurred at nests with an unknown history. All incidents occurred during a late stage of nesting within a colony. These observations suggest that the eggs most likely to be destroyed are those freshly laid on a recently vacated nest late in the nesting season. When eggs disappear from nests because of predation, rain, or being blown ashore by strong winds, multiple pairs of grebes often copulate on the nests (copulation occurs only on nests), and females often dump eggs on them; sometimes the eggs are subsequently incubated but often they are not (Hayes and Turner 2017, Hayes et al. 2018, this study). The individuals engaging in such frenetic reproductive activities may be unmated individuals seeking a mate, mated pairs seeking a new nest after recently losing a clutch of eggs, mated individuals seeking opportunities for extra-pair copulations, or females dumping surplus eggs.

Egg destruction was perpetrated only by males, which presumably benefit from the behavior more than females whose eggs were victimized. Previous reports of intraspecific egg destruction in other species of grebes did not report the sex of perpetrators (McAllister 1958, Perkins et al. 2005, Konter 2008a,b, Summers et al. 2009).

The consumption hypothesis postulates that the perpetrator consumes the eggs to obtain nutrients. Several species of birds, especially in the families Laridae and Corvidae, routinely cannibalize the eggs of conspecifics (e.g.,

Pettingill 1939, Parsons 1971, Yom-Tov 1975, Trail et al. 1981, Chardine and Morris 1983). Such cannibalism may occur most frequently when food resources are limited (Hayward et al. 2014). However, we never observed grebes consuming the contents of destroyed eggs and neither did the observers of intraspecific egg destruction in other species of grebes (McAllister 1958, Perkins et al. 2005, Konter 2008a,b, Summers et al. 2009).

The competition hypothesis proposes that destroying neighbors' eggs may drive away competitors for limited resources, such as food or nest sites (Picman 1977a, b, Vehrencamp 1977, Belles-Isles and Picman 1986, Heinsohn 1988, Pribil and Picman 1991, 1992, Kattan 2016). However, *Aechmophorus* grebes nest in dense colonies with closely spaced nests (Storer and Nuechterlein 1992). At Clear Lake we recorded up to 433 nests per hectare with an average of 2.9 m between nests, but some nests were <1 m apart (Hayes et al. 2018, unpubl. data). Although we often observed aggression between pairs of grebes on neighboring nests and occasionally observed grebes stealing nesting material from neighboring nests, eggs were destroyed only on recently vacated nests. If the grebes intended to drive away competitors for limited resources, they should be expected to destroy eggs on new nests as well.

The sexual-selection hypothesis suggests that males or polyandrous females destroy eggs of potential mates to terminate their current nesting cycle, make them receptive to mating again, and subsequently mate with them (Stephens 1982, Freed 1986, Brown and Brown 1988, Kermott et al. 1991, Veiga 1993). However, in incidents 1 and 2 an incubating pair never copulated during at least the first 9 hours after egg destruction. Copulations occurred after egg destruction in incidents 4 and 5, but the circumstances suggest other reasons for destroying eggs (see below).

The nest-usurpation hypothesis postulates that eggs of a conspecific are destroyed so the nest can be acquired by a perpetrator for its own use, a scenario most likely when nest sites are limited. For example, several cavity-nesting species of birds destroy the eggs of conspecifics to usurp their nests (Hotta 1994, Bonebrake and Beissinger 2010, Kasahara et al. 2014). Similarly, nests that are costly to build and maintain may also be usurped. Grebes invest considerable time and energy constructing large and bulky floating nest platforms, which require the addition of new nesting material each day to prevent them from dissipating (Fjeldså 2004). McAllister (1958) attributed the destruction of Eared Grebe eggs to pairs of grebes aggressively taking over other grebes' nests that already contained eggs. In incident 4, an egg a female Western Grebe laid in a recently vacated nest was tossed from the nest by a male Western Grebe <30 seconds later. Afterward a pair of Western Grebes copulated on the nest four times, suggesting that the first egg was tossed off the nest so that the pair could usurp the nest.

The anti-parasitism hypothesis proposes that eggs of conspecific brood parasites are removed from a nest to reduce the cost of raising the offspring of other individuals (Emlen and Wrege 1986). For example, the European Starling (*Sturnis vulgaris*) routinely removes the eggs of conspecific brood parasites from its nests (Stouffer et al. 1987, Lombardo et al. 1989, Romagnano et al. 1990, Moksnes and Elvertø 2006). Lyon and Everding (1996) reported a high rate of intraspecific brood parasitism in the Eared Grebe

and a higher rate of egg loss from parasitized nests than from nonparasitized nests. Lyon and Everding (1996) reinterpreted McAllister's (1958) report of eggs tossed from nests as grebes ridding their nests of eggs dumped by brood-parasitizing conspecifics. Brood parasitism is common in *Aechmophorus* grebe colonies, with clutches often exceeding ten eggs. Bent (1919) reported up to 16 eggs in a single nest, and we have documented up to 30 eggs in a nest at Clear Lake (Hayes et al. unpubl. data). The grebes routinely incubate clutches of up to ten eggs, but larger clutches are rarely incubated (Hayes et al. unpubl. data). In incident 5, a female Clark's Grebe laid an egg on a nest in which a pair of Western Grebes had copulated four times during the previous 3.5 hours. The dumped egg was destroyed within 1 hour by a male Western Grebe, suggesting that the latter recognized a parasitic egg in its nest.

The anti-cuckoldry hypothesis posits that males destroy eggs in their own nest when the paternity of their partner's eggs is in doubt, as has been reported in several species of birds (Freed 1987, Osorio-Beristain and Drummond 2001, Chen et al. 2008, García-Navas et al. 2013). In incidents 1 and 2 the eggs of a male Clark's Grebe and female Western Grebe were destroyed by a predator. Later in the day a pair of Western Grebes attended the nest and two eggs were laid, although no copulations occurred. The following day a male Clark's Grebe and female Western Grebe took turns incubating the eggs, one of which was soon destroyed by the male. After a female laid another egg, one of the remaining two eggs was also destroyed by a male. Given the lack of copulations with its mate on the nest the male may have destroyed eggs suspected of being fertilized by another male. These incidents could also be interpreted as a pair usurping a nest with two eggs whose destruction they delayed.

The pathology hypothesis considers egg destruction a displacement behavior with no adaptive value, perhaps occurring when a nest is disturbed by the presence of humans or a mate is lost (Mountfort 1958, Chardine and Morris 1983, Boves et al. 2011). Six of the seven incidents we describe, however, were documented by stationary, nonthreatening motion-activated cameras when no humans were present. Five of the incidents occurred the day after a predator took an egg the previous night, but the cameras gave no evidence of predation on an adult grebe or of a predator during the day when the egg was destroyed.

In conclusion, male *Aechmophorus* grebes rarely destroy eggs freshly laid in recently vacated nests during the late stage of nesting within a colony, possibly to usurp the nests for their own use or to prevent brood parasitism or cuckoldry by other grebes. Because none of the eggs or adults were marked and no tissue samples were taken, we cannot be certain of the relationships among adults and eggs, and whether the egg destruction was intraspecific or interspecific.

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THE BUMBLEBEE HUMMINGBIRDS (*ATTHIS HELOISA*) OF RAMSEY CANYON REVISITED

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ABSTRACT: The provenance of the two specimens constituting the only evidence of the occurrence of the Bumblebee Hummingbird in the United States has been questioned. But their origin in or near Ramsey Canyon, Arizona, in 1896 is confirmed from the journal of Harry S. Swarth, one of the four collectors who mounted an expedition to the Huachuca Mountains that year. In his journal, Swarth mentioned them as unidentified hummingbirds, one collected in Miller Canyon on 29 June 1896, the other in Brown's Canyon, a side canyon of Ramsey Canyon, the following day.

The Bumblebee Hummingbird (*Atthis heloisa*) occupies a singular place in the history of Arizona ornithology. The only United States record for this very small hummingbird is based on two specimens collected in 1896 at Ramsey Canyon, in the Huachuca Mountains of southern Arizona. An adult female skin (USNM 153886) is held in the collection at the U.S. National Museum of Natural History, Smithsonian Institution (Figure 1), and an immature female (MVZ 10299) is in the Museum of Vertebrate Zoology at the University of California, Berkeley (Figure 2). Harry Rising collected the birds and companion William B. Judson prepared them as museum specimens; both were young ornithologists on a collecting expedition to Ramsey Canyon. The tag attached to each specimen bears the date "July 2, 1896" and the name W. B. Judson.

Robert Ridgway (1898) described the Ramsey Canyon specimens as a new species of *Atthis* (*A. morcomi*), and later Harry S. Swarth gave details on their acquisition in two publications on Arizona birds (Swarth 1904, 1914). In 1910, these records were included in the third edition of the American Ornithologists' Union's checklist of North American birds. Their identity is not disputed. However, questions about the authenticity or provenance of these records have arisen because the Bumblebee Hummingbird has not been sighted in the United States since 1896 (Zyskowski et al. 1998, Dunn and Alderfer 2017).

Could Rising or Judson have collected the birds in Mexico or acquired

Figure 1. Adult female Bumblebee Hummingbird (*Atthis heloisa*) in the collection at the U.S. National Museum.

Photo by Christopher Milensky

them from someone who had? The current northern extent of the Bumblebee Hummingbird's range in Mexico is in the central Sierra Madre Occidental, southwestern Chihuahua (Howell and Webb 1995, Arizmendi et al. 2013). Could the specimens or their tags have become mixed up in the field with other hummingbird specimens or back in Los Angeles after Rising and Judson returned from the expedition? Perhaps specimen tags were accidentally switched when the birds were accessioned into museum collections. The field journal kept by Swarth, then a 17-year old companion with Rising and Judson in Ramsey Canyon, sheds new light on these records.

The lack of Bumblebee Hummingbird sightings in the U.S. over the past 120 years may seem surprising, especially considering that Ramsey and nearby mountain canyons in southern Arizona have been extensively explored by legions of birders over the past half century. Howell (2002) emphasized that this hummingbird could be easily overlooked because it is generally silent and often feeds and perches "inside flower banks." Nevertheless, if Bumblebee Hummingbirds inhabited these canyons today or in recent decades, it is reasonable to expect that someone would have observed one.

HISTORICAL BACKGROUND

On 29 February 1896, Judson, Rising, O. W. Howard, and Harry S. Swarth departed Los Angeles on a journey on foot, horseback, and by wagon to the Huachuca Mountains. The men, all in their late teens, were active southern California birders. Their expedition was inspired by Major Charles Bendire, a U.S. Army officer and well-known oologist recognized for the large egg collection he had donated to the Smithsonian Institution. Bendire's familiarity with the birdlife of Arizona and New Mexico, acquired while serving in that region, led him to correspond with George Frean Morcom of Los Angeles and to suggest the Huachucas as a favorable location for study. Morcom was known for financing bird-collecting trips in California, and at this time he was Swarth's mentor. He agreed to provide the financial support for the Ramsey Canyon expedition. This was the second organized ornithological expedition to Arizona, coming only a few years after C. Hart Merriam's biological survey of the San Francisco Mountain region in 1889 (Merriam 1890). After two months of travel, according to Swarth, the group established camp on 25 April, "up Ramsey Canyon, about a mile and a half, as far as the wagon road went." For three months they explored and collected birds in Ramsey, Brown, Miller, and Carr canyons, with occasional trips onto the desert plain to the east.

Hummingbirds are abundant and diverse in Ramsey Canyon. In addition to the Bumblebee Hummingbirds, the group collected 42 specimens and observed 9 species: the Rivoli's (*Eugenes fulgens*), Blue-throated (*Lampornis clemenciae*), Black-chinned *(Archilochus alexandri*), Costa's (*Calypte costae*), Broad-tailed (*Selasphorus platycercus*), Rufous (*S. rufus*), Allen's (*S. sasin*), Broad-billed (*Cynanthus latirostris*), and White-eared (*Hylocharis leucotis*). Calliope Hummingbirds (*Selasphorus calliope*) were not encountered because the men departed the mountains on 19 July, well before Calliopes typically begin passing through southern Arizona in fall migration (Phillips et al. 1964). No Anna's Hummingbirds were seen either, as they

Figure 2. Immature female Bumblebee Hummingbird (*Atthis heloisa*) in the collection at the Museum of Vertebrate Zoology. University of California, Berkeley.

Photo courtesy of Carla Cicero

had not yet occupied southeast Arizona. The four men observed a total of about 86 bird species and collected over 400 specimens. Except for one of the two Bumblebee Hummingbirds at the Smithsonian, all other specimens are housed at California Academy of Sciences in San Francisco and at the Museum of Vertebrate Zoology in Berkeley.

HARRY SWARTH'S FIELD JOURNAL

Recently I came across Harry Swarth's hand-written 1896 Ramsey Canyon field journal in a collection of family documents. The journal contains a daily record of birds observed and collected during the five-month expedition. While examining this journal in preparation for its publication (Swarth 2018), I found entries that undoubtedly refer to the two Bumblebee Hummingbirds. He used the notation, "(?) Hummer," for unidentified female or juvenile hummingbirds, or for a hummingbird nest without an attending adult. The following verbatim journal entries made on four consecutive days describe events surrounding the Bumblebee Hummingbirds:

June 29

"Will and I stayed in camp almost all day, skinning birds, and in the afternoon walked down the cañon, after an Oriole's and a Hummer's nest. The Oriole had deserted and the Hummer nest was gone. The others returned in the afternoon after going over about the same ground [Miller Canyon] that we covered yesterday. They brought back an Arizona Junco, four Redstarts, two Red-faced Warblers, a Western House Wren, three Mexican Creepers, a Long-crested Jay, a Bluebird, a male Rivoli Hummer, a (?) Hummer, and an adult male Olive Warbler. They collected a set of Coues' Flycatchers, found several nests containing incomplete sets. They also found Bluebirds, Wren, and Robins' nests containing young."

June 30

"Will and I stayed in camp, and the others went over to Brown's Cañon, and the wash below. They shot five Vermilion Flycatchers, an Ash-throated Flycatcher, two Bridled Tits, two Baird's Wrens, a (?) Hummer, and a Shore lark. They took three sets of (?) Hummer, a set of Vermilion Flycatchers and a set of White-necked Raven."

July 1 (excerpt)

"Will and I walked down the cañon, after skinning what birds we had."

July 2 (excerpt)

"In the morning Will went over the cliff to the Swift's nest from which Howard took the set. There were no eggs there, so he took the nest. There were no birds to be skinned so Will shot a Bridled Tit and Lead-colored Bush-tit. The others went up the right hand cañon and brought back about twenty five birds among them a male Rivoli Hummer."

Several discrepancies exist between the dates and locations on the Bumblebee Hummingbirds' museum tags and details recorded in Swarth's journal. Regarding the collection date, he wrote that on 29 and 30 June, single unknown hummingbirds [i.e., "(?) Hummer"] were brought to camp. These are the only two such unidentified hummingbirds mentioned in the entire journal. Significantly, Swarth's notes reveal that the hummingbirds were collected on two different days in late June, not on the same day as stated on the tags and in the publications that cite these records. Furthermore, according to the notes the birds were not actually prepared on 2 July. His entry for this day states, "there were no birds to be skinned." On the other hand, the journal entry for 1 July states, "Will and I walked down the cañon, after skinning what birds we had." Judson may have written 2 July on the specimen tags to mark the day he thought he had skinned the birds, although he appears to have been off by a day. Typically, the specimen tag date signifies the collecting date rather than the preparation date. I did not locate or examine any field notes from other expedition members to corroborate these details.

The journal states that one of the unknown hummingbirds was collected in Miller Canyon and the other in Brown's Canyon. Miller Canyon is similar in size to Ramsey Canyon and is about 5 km south, whereas Brown's Canyon is a small, shallow side canyon directly off Ramsey. Swarth (1904:19) gave Ramsey Canyon as the collecting location but indicated that the two birds were not taken together: "*Atthis morcomi* Ridgway. Morcom Hummingbird: Known only from two females shot by H. G. Rising, July 2, 1896. These were taken in Ramsey Canyon, not together but not far distant from one another; and at an altitude of about 7,500 feet. I have looked carefully for this species since then, but have seen nothing that I could ascribe to it, though possibly when Calliope was so abundant there might have been some of *morcomi* with them without my noticing."

The journal shows that the hummingbirds, therefore, were not collected in Ramsey Canyon *sensu stricto*, and could have been collected as far as 8 km from one another.

Considering the lack of any other sightings in the U.S., a question could remain: were the hummingbirds collected in Mexico? Swarth's journal does not mention contacts with anyone from Mexico during the men's stay in Ramsey Canyon, and very few visitors came to camp. For example, their only visitor from nearby Fort Huachuca was a U.S. Army photographer on 12 July. The men traveled a considerable distance from the mountains on only three occasions, to purchase supplies in Fairbank (now a ghost town) 50 km away. When field work ended on 19 July they boarded the train at the railroad siding north of Fort Huachuca, and headed home via Benson to Tucson on to Los Angeles. None of the men traveled across the border into Mexico.

IDENTIFICATION CONFIRMED AND EARLY PUBLICATIONS ON THE BUMBLEBEE HUMMINGBIRDS

The group continued to puzzle over the mysterious female hummingbirds after they returned to Los Angeles. As no one in the southern California ornithological community was able to identify the specimens, the men sent them to the U.S. National Museum in Washington, D.C., where Robert Ridgway determined that they were *Atthis* hummingbirds and represented a species new to the United States. Ridgway also concluded that they were sufficiently distinct from *Atthis heloisa* to be a new species, which he named Morcom's Hummingbird (*Atthis morcomi*) (Ridgway 1898). This must have been an exciting conclusion to the field work and a fitting tribute to the expedition's benefactor George Morcom. Ridgway concluded his paper by stating, "This new species is dedicated to Mr. G. Frean Morcom, of Los Angeles, California, to whom I am indebted for the privilege of describing it. The type was presented to the National Museum by Mr. W. B. Judson in honor of George Morcom."

Morcom's Hummingbird had a brief lifespan as a full species. By 1914, in *A Distributional List of the Birds of Arizona*, Swarth followed the consensus of others that the specimens represented a subspecies (*Atthis heloisa morcomi*). By 1931, following further analysis by Bangs (1927), the A.O.U. Checklist (1931) synonymized *A. h. morcomi* with *A. heloisa*. This determination, however, has not been universally accepted.

THE SOURCE POPULATION OF THE RAMSEY CANYON BUMBLEBEE HUMMINGBIRDS

If the subspecific identity of the specimens could be determined with certainty, it might be possible to identify their source population. Two subspecies of the Bumblebee Hummingbird are recognized in most recent literature (e.g., Friedmann et al. 1950, Clements et al. 2017). The northern subspecies, *A. h. margarethae*, occurs in the mountains of northwest Mexico from southeast Sinaloa and southwest Chihuahua to Jalisco, at an elevation of 1500 to 3000 m (Moore 1937, Friedmann et al. 1950). The range mapped by Arizmendi et al. (2013) extends north to about 560 km south of Ramsey Canyon. The southern subspecies, *A. h. heloisa*, occurs in the highlands of central Mexico from central Tamaulipas to Guerrero and Oaxaca (Moore 1937, Clements et al. 2017).

For his description of *A. h. margarethae* Moore (1937:99) examined the adult Ramsey Canyon specimen, called these birds "vagrants" (although late June seems early for vagrants), and stated, "the action of the A.O.U. Committee in relegating *Atthis morcomi* to the synonymy of *Atthis heloisa heloisa* is a logical one." Phillips et al. (1964) disagreed, maintained the Ramsey Canyon specimens within the subspecies *morcomi*, and asserted that *A. h. margarethae* was not valid. According to Phillips et al. (1964:64), "The two Arizona specimens are the types of the pale northwest-Mexican race *morcomi* (Ridgway), which breeds in the Sierra Madre Occidental from southern Chihuahua south." Howell (2002) inspected the specimens, considered their systematic status, and concurred with Phillips et al. Although this conclusion

makes sense from the geographical proximity of *margarethae*, the population from which the 1896 birds originated appears to remain an open question.

In conclusion, Harry Swarth's field journal provides details that establish the region around Ramsey Canyon, Arizona, as the locale for the two Bumblebee Hummingbird specimens collected in 1896. The journal also reveals other pertinent facts: one bird was collected in nearby Brown's Canyon and the other in Miller Canyon, and the birds were not collected on 2 July as denoted on the museum tags, but on 29 and 30 June. Other questions still persist. Were Bumblebee Hummingbirds breeding in the Huachuca Mountains when discovered in 1896, as suggested by the presence of the immature female? If they were breeding, why were no males observed? Has the habitat in the Huachuca Mountains changed significantly over the past 122 years, making this area unsuitable today? And, finally, why is the Bumblebee Hummingbird entirely absent in the southwestern United States today?

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NOTES

COMMON CUCKOO (*CUCULUS CANORUS*) COURTSHIP IN SOUTHWESTERN ALASKA AND SUMMARY OF OCCURRENCE IN THE STATE

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Imminent expansion of the breeding range of the Common Cuckoo (*Cuculus canorus*) from Asia to North America has been predicted by Dinets et al. (2015) and Ogden (2016), who pointed to the number of recent records of the species in Alaska as a response to continuing climate change. Their having postulated an "invasion" (Dinets et al. 2015:248) from the Russian Far East via the Bering Strait and their having referred without details to "a courting pair…in Alaska" (ibid.:245) have prompted the preparation of this note.

On 20 June 1995 at the close of a week's fieldwork in the outer Shumagin Islands, which lie off the south side of the Alaska Peninsula, I arrived at Sand Point (55° 20′ N, 160° 30′ W), on Popof Island, to spend several days collecting bird specimens in alders (*Alnus crispa*) constituting Tall Shrub Thicket habitat (Kessel 1979). As I drove out of the village in morning fog at 07:00 on 21 June 1995, I was surprised to see a distinctive *Cuculus* cuckoo—then unknown so far east in Alaska—perched on a roadside post. It flew low across the road, perched again, low, then flew around a copse of alders on a low hill and disappeared; in the ensuing two hours I was unable to find it. But at 10:00 at nearby East Head, I heard the repeated "cúck-oo', cúck-oo', cúck-oo" of a Common Cuckoo and then observed two cuckoos in what I took to be courtship flight (see Cramp 1985)—the male calling "cúck-oo" repeatedly as the two birds flew side by side with deep slow wingbeats. They flew in a wide circle of 150–200 m diameter, no more than 10 m up, that returned them to dense alders and willows (*Salix*) 3–4 m tall. The male then flew off, calling constantly both in flight and perched. I pursued and collected the bird (Figure 1), then returned to the area where both had first gone

Figure 1. UAM 6678, adult ♂ *Cuculus canorus canorus*, 21 June 1995, East Head, Popof Island, Shumagin Islands, Alaska. A, lateral view; B, ventral view.

Photos by J. J. Withrow

into the alders, but in a lengthy search I could not find the female. At about 18:00 that day and 0.8 km from this area, in my only additional glimpse, I observed at a distance a Black-billed Magpie (*Pica hudsonia*) pursuing, though not vigorously, a *Cuculus* in flight 15 m up. Probably storm-carried so far east (see Gibson and Byrd 2007), these birds had apparently arrived (separately or together) seasonally too late for courtship on 21 June to be propitious, since the only potential passerine hosts in the immediate vicinity—the Hermit Thrush (*Catharus guttatus*), Pine Grosbeak (*Pinicola enucleator*), Savannah Sparrow (*Passerculus sandwichensis*), and Golden-crowned Sparrow (*Zonotrichia atricapilla*)—were on that date probably all feeding recently hatched young.

The Common Cuckoo has had a substantiated history in Alaska only since specimen records began to accumulate from fieldwork in the western and central Aleutian Islands, beginning in 1971 (see Byrd et al. 1974, 1978, Kessel and Gibson 1978, Gill and Handel 1980, Winker et al. 2002, Lehman 2005, Gibson and Byrd 2007, Gibson and Withrow 2015, Schwitters 2015). Before 1971, the few Alaska specimens of *Cuculus* had been identified as *C. canorus* (see Palmer 1894, Friedmann and Riley 1931, Murie 1936, Hanna 1947), but subsequently all of these were reidentified as Oriental Cuckoos (*C. saturatus horsfieldi* = *C. optatus*) (see Deignan 1951, Murie 1952, AOU 1957). To date, all records of these species on the Alaska mainland have been of lone birds, as have most reports elsewhere in Alaska beyond the Aleutians. The spring of 1999 was a notable exception—when at least seven Common Cuckoos were reported 3–18 June at St. Paul Island, Pribilofs, and up to four were reported 6–13 June at St. Lawrence Island (Tobish 1999). Only in the western Aleutians have there been numerous records of multiple cuckoos, often twos or threes, and once a scattered group of at least eight, including a singing male (see Gibson and Byrd 2007). The Shumagin birds provided the first Alaska observation of a *pair*.

Thus the preponderance of *Cuculus* records in Alaska come from the western and central Aleutians (52° N, 172° E to 176° W), which area—still distant from continental North America—these birds have reached through long transoceanic passage from departure points in Asia over 1600 km south and west of Bering Strait (65° N, 169° W). Cuckoos look very out of place in the treeless, windswept, maritime Aleutians, and I suspect that most of them there, as well as on Bering Sea islands to the north and east, do not survive the summer of their arrival. Moribund cuckoos have been found in midsummer (e.g., Univ. Alaska Mus. [UAM] 3250, adult ♂, one of three present, 1–3 July 1972, at Kiska Island, Aleutians; see Byrd et al. 1974), and *Cuculus* remiges have been recovered from a Bald Eagle (*Haliaeetus leucocephalus*) aerie (UAM 3261, 11 July 1972, at Amchitka Island, Aleutians).

On the Alaska mainland, lone Common Cuckoos have been recorded at widely separated localities and intervals: in western Alaska on the Yukon–Kuskokwim delta (Gill and Handel 1980; UAM 3733, 11 June 1979) and near Nome (UAM 5470, 13 June 1988), in south-central Alaska at Anchorage (17 June 1999; Tobish 1999; audio recording UAM), in northern Alaska on the Colville River delta (9–11 September 2008; Tobish 2009; photo *N. Am. Birds* 63:185, 2009), and, most recently, in southeast Alaska at Sitka (9–14 June 2015; Tobish 2016; photos UAM). So far as I know there has not been an Alaska report of multiple Oriental Cuckoos.

At this juncture I think it is not possible to distinguish clearly the contemporary results of observers' wider and more regular coverage of Alaska from the possible responses of cuckoos to climate change, or from the compounding of those two factors (note well the exceptional year 1999, above). At all events, *Cuculus* cuckoos would appear to have an uphill struggle to expand their breeding range/s into Alaska—either near the Arctic Circle, where the continents are close together, but where ecological and environmental conditions present severe constraints and where few cuckoos have occurred; or on Alaska's Pacific rim, where most of Alaska's cuckoos have occurred, but where long flights over water to reach acceptable habitat and hosts remain daunting.

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GREEN HERON PREYS UPON HUMMINGBIRDS

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On 5 February 2017, William Peebles photographed an adult Green Heron (*Butorides virescens*) capturing two separate hummingbirds at the Los Angeles County Arboretum in Arcadia, Los Angeles Co., California. The encounter took place at the waterfall created in the south-central portion of the grounds. Peebles' written description of the encounter is paraphrased in this note.

As Peebles approached the waterfall, he noticed a Green Heron standing on top of the falls. The heron seemed preoccupied, and Peebles noticed that several hummingbirds seemed to be harassing it. He watched for a minute or so and noted a hummingbird hovering a few feet in front of the heron. The heron, clearly agitated, twisted its head to follow the hummingbirds as they flew around it. To obtain a closer view Peebles moved to a position above the falls. There he immediately noticed that the heron had captured an Anna's Hummingbird (*Calypte anna*) by the tail (Figure 1), though he did not witness the actual capture. The hummingbird escaped this encounter with the heron. Peebles repositioned himself to get closer and found that the heron had captured a second hummingbird, this time an Allen's (*Selasphorus sasin*). Again he did not witness the capture, but photographed the event until the heron had completely swallowed the hummingbird (Figure 2).

Davis and Kushlan (1994) did not mention birds among the foods reported for the Green Heron in the primary literature on the species. A photo by James E.

Figure 1. Green Heron capturing an Anna's Hummingbird, which escaped, Los Angeles County Arboretum, Arcadia, California, on 5 February 2017.

Photo by William Peebles

Figure 2. The same Green Heron capturing and consuming an Allen's Hummingbird.

Photo by William Peebles

Zabriskie (accompanied by Marcy Scott) taken near Radium Springs, Doña Ana Co., New Mexico, on 4 June 2006 shows an adult Green Heron with a female Black-chinned Hummingbird (*Archilochus alexandri*) in its bill [*North American Birds* 60: 597, 2006]. Another Green Heron fed on nestlings of the Village Weaver (*Ploceus cucullatus*) in the Dominican Republic (Wiley 2001). Stocker (1994) reported a Striated Heron (*Butorides striata*), a close relative of the Green Heron, preying on a Red-billed Quelea (*Quelea quelea*) at the Victoria Falls in Zimbabwe, Africa; that heron repeatedly wetted its prey before swallowing it, a behavior not observed with the Green Heron at the Los Angeles arboretum. According to Moran (2010) a Lava Heron (*Butorides* [*striata*] *sundevalli*), another close relative, captured a Small Ground Finch (*Geospiza fuliginosa*) on Española Island in the Galapagos Archipelago on 24 May 2003. We thus report here one of the few records of a *Butorides* heron taking birds, and only the second such case involving the Green Heron or involving hummingbird prey. Nonetheless, the Green Heron is known for innovative foraging behavior, including the use of bait and tools. Whether the Green Heron at the Los Angeles County Arboretum was actively hunting hummingbirds or reacting aggressively to harassment by the hummingbirds is uncertain.

We thank Lou Orr for bringing this interesting observation to our attention and William Peebles for providing the photos and description of the encounter. John F. Garrett and Greg B. P. Davies provided details of important references. Reviews by Doug Faulkner, Steven Mlodinow, and Philip Unitt improved the draft.

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DEPREDATION OF BLACK-CHINNED HUMMINGBIRD NESTLINGS BY YELLOWJACKETS

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The frequency and extent of predation on hummingbird nestlings by wasps of the family Vespidae is not well known. Among the 14 hummingbird accounts in the *Birds of North America* series, there are no documented records of vespids killing adults or young of any species of hummingbird. A further literature review returned only four reports of vespid predation of bird nestlings, supporting the conclusion that this type of predation is rare or underreported. On 29 July 2018 I observed the predation of two Black-chinned Hummingbird (*Archilochus alexandri*) nestlings by four to six yellowjackets (*Vespula* sp.) in the Highlands area of the Boise foothills in Idaho. I first became aware of the hummingbird nest, about 2 m off the ground on the lower branch of an ash (*Fraxinus* sp.) tree overhanging my ground-level deck, on 20 July. Later in the day I photographed the adult female hummingbird on the nest from a discreet distance (Figure 1A and B). I checked on the nest regularly with binoculars and photographed it in late morning and early evening, when sunlight fell on the nest. The adult female was observed on the nest from 20 to 24 July. On 24 July, I observed nestlings for the first time. I last photographed the nestlings on 28 July in the late morning, mid-afternoon, and early evening (Figure 1C, D, E, and F).

On the morning of 29 July, I checked on the nestlings at 09:45 when their heads and beaks were visible above the nest. There was no sign of any predation or the nest being compromised. At 11:10 I checked the nest again and saw one yellowjacket moving along the bottom outside of the nest and then saw two yellowjackets climbing along the top edge and in and out of the nest. From my vantage point, I could not see into the nest itself, but was concerned as I could no longer see either the heads or beaks of the nestlings.

At 11:20, I went outside and looked on the ground below the nest but did not see either of the nestlings. I flicked water from a cup at the nest with my fingers in an unsuccessful attempt to drive away the yellowjackets attacking the nest (Figure 1G). I kept checking the nest through binoculars from the second-floor window. At 11:45, I observed a yellowjacket carrying a feather down the side of the nest and saw other yellowjackets pulling out something red from the nest that appeared to be bird flesh. I did not look again at the nest until 12:15, at which time yellowjackets were no longer present. I did not see the adult female attempt to defend the nest during the attack, although at the time I first observed the attack, the nestlings were already being consumed. However, on 30 July, when I decided to document what remained by photographing the interior of the nest (Figure 1H), the adult female buzzed close to my face in defense of the nest.

I did not obtain specimens of the yellowjackets responsible for the attack, but to identify the species most likely involved, I placed a yellowjacket trap within 4 m of the nest and collected specimens for a 72-hour period following the attack. I preserved the specimens in alcohol and sent them, as well as the photo (Figure 1G) to Luc Leblanc, curator of the William F. Barr Entomological Museum at the University of Idaho, for identification and deposition. Dr. LeBlanc (pers. comm.) identified 93 of the 99 specimens as the Western Yellowjacket (*Vespula pensylvanica*) and the remaining six as the Prairie Yellowjacket (*V. atripilosa*). He indicated the yellowjackets in the photo are consistent with the Western Yellowjacket, the predominant species in the trap, but that two other species common in Idaho, the Aerial Yellowjacket (*Dolichovespula arenaria*) and Common Yellowjacket (*V. vulgaris*), have a pattern of abdominal coloration similar to those in the photo. Thus the Western Yellowjacket was most likely though not unequivocally the culprit.

Richter (2000) reported that vespids, such as yellowjackets, forage for water, plant

fibers, pulp, and carbohydrates, as well as for arthropod prey and animal protein. They commonly scavenge dead animals, both vertebrates and invertebrates. The few previous reports of vespid predation on birds include one of three Blackcap (*Sylvia atricapilla*) hatchlings being stung by worker wasps (*Vespa sylvestris*) near Cheltenham, England (Wild 1927). Wild killed one of the wasps and drove the other two away but returned an hour later to find several wasps consuming the nestlings. Grant (1959) reported seeing day-old Rufous Hummingbird (*Selasphorus rufus*) hatchlings being consumed by yellowjackets (*Vespula* sp.). Grant (p. 175) also reported seeing an adult Rufous Hummingbird at the same locality suddenly drop to the ground, then saw a "black hornet" (*V. maculata*) on the bird with its "mandibles working furiously" before both took flight.

Moller (1990) reported that several respondents to a New Zealand survey reported wasps feeding on dead adult or nestling birds, but the respondents could not say whether the observations represented predation or scavenging. On the South Island of New Zealand, Moller (1990) did report an attack by German wasps (*V. germanica*) on newly hatched Dunnocks (*Prunella modularis*). Surrounded by flying wasps, the adult birds repeatedly tried to defend the nest while at least one of the three to four hatchlings was still alive. Moller posited that the predation of nestlings by wasps happens much more frequently than reported, but, because the predation itself occurs so quickly, it is rarely observed. Winkeler (2012) reported an incident of four or five Ruby-throated Hummingbirds (*Archilochus colubris*) being killed by European hornets (*Vespa crabro*) while being banded in Illinois. Weidensaul et al. (2013) suggested that because of its large size the invasive European hornet might pose a particular threat to Ruby-throated Hummingbirds.

Moller (1990) asked readers to contact him regarding any observed instances of wasps preying on birds. I contacted him, asked if he had received any such reports over the past 28 years since his publication, and he replied he had not. He concluded (pers. comm.) that direct predation, such as the event I witnessed, was probably uncommon. As Moller no longer studies social wasps, he put me in contact with Jacqueline Beggs, director of the Centre for Biodiversity and Biosecurity, School of Biological Sciences—Te Kura Matauranga Koiora, University of Auckland, who currently does so in New Zealand. She too has few records of yellowjackets attacking nestling birds, remarking that it is difficult to determine if living nestlings were directly attacked by wasps or if they were killed by something else and then scavenged by the wasps (pers. comm.). In a study of 206 hummingbird nests in southwestern New Mexico and southeastern Arizona, Baltosser (1986) found that predation accounted for almost 80% of all nest failures, far more than observed from abandonment, structural failure, infertility, and inclement weather.

Thanks to Terry Rich for his review of the hummingbird accounts in the *Birds of North America* series and his review and valuable feedback for this note. Thanks to Allen Chartier for confirmation of the nestlings' approximate age. Thanks also to Ruth Givens and Stacy Rambough for their help in the process of identifying the yellowjackets. And thanks to Luc Leblanc for his identification of the yellowjackets, his review of the manuscript before submission, and formatting of the photo panel.

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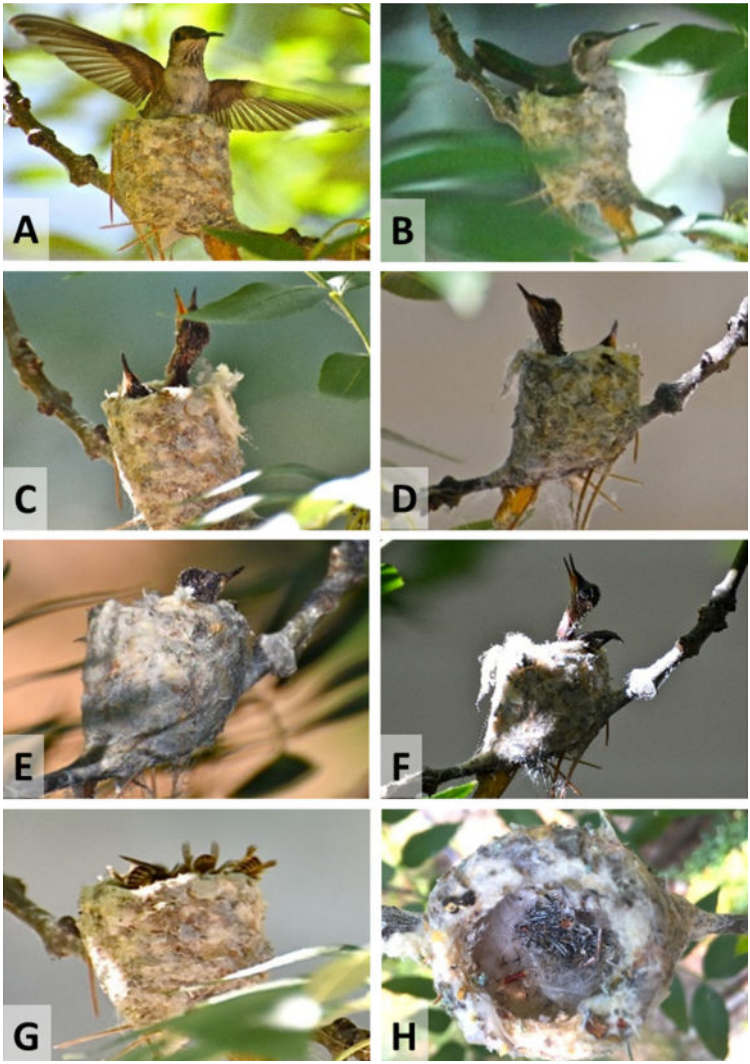

Figure 1. A and B, female Black-chinned Hummingbird observed at nest on 20 July 2018. C–F, Black-chinned Hummingbird nestlings on 28 July 2018 at 11:30 (C), 14:00 (D), and 18:15 (E) and 18:30 (F). G, nest during predation; H, nest after predation.

Photos by Krista Lyons

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EVIDENCE OF INTERGRADATION WITHIN THE GOLDEN-CHEEKED WOODPECKER

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The Golden-cheeked Woodpecker (*Melanerpes chrysogenys*), restricted to the Pacific slope of Mexico from Sinaloa to Oaxaca, comprises two subspecies. Nominate *M. c. chrysogenys*, identified by its extensively red crown, ranges from Sinaloa south to San Blas, Nayarit (Winkler and Christie 2017). Ridgway (1914) stated that near San Blas there is an abrupt transition from the reddish-naped *M. c. chrysogenys* to the yellow-naped *M. c. flavinuchus*, which is distributed southward to western Oaxaca. The subspecies also differ in the amount of yellow in the face, with *flavinuchus* averaging less yellow; this subspecies is also generally paler overall (Ridgway 1914). The distinction between these two subspecies, however, is perhaps not widely appreciated. For example, geographic variation in the crown pattern of the Golden-cheeked Woodpecker was not mentioned by Howell and Webb (1995), who illustrated only *flavinuchus*. The question of intergradation between the two subspecies has not been addressed in the literature previously. Therefore, we investigated it by evaluating 172 specimens in the collection of the Moore Laboratory of Zoology (MLZ), 14 specimens in the Natural History Museum of Los Angeles County (LACM), five specimens in the Dickey Bird and Mammal Collection of the University of California, Los Angeles (UCLA), and 31 specimens in the Western Foundation of Vertebrate Zoology (WFVZ), Camarillo, California.

In this species, males are larger than females in both wing chord and culmen (Table 1). The differences in both variables are significant ($p << 0.001$), so we analyzed differences between the subspecies in the two sexes separately. Measurements confirmed that in both sexes *M. c. flavinuchus* averages larger than *M. c. chrysogenys* in both features (Table 1). The specimens analyzed for variation in size exclude any from Nayarit, since that state contains the zone of contact. The difference in males was significant for wing chord ($p = 0.008$) but not for culmen length ($p = 0.37$). The difference in females was significant for both wing chord and culmen length ($p < 0.001$).

Visual inspection confirmed that *M. c. flavinuchus* has a yellow nape while *M. c. chrysogenys* has a reddish-orange nape. In 25 specimens of *M. c. chrysogenys* from Sinaloa the length of the crown patch averages 32.9 mm (range 22.3–37.4 mm, standard error 0.88), whereas in 74 of *M. c. flavinuchus* collected from Jalisco to Oaxaca it averages 24.5 mm (range 17.1–32.8 mm). According to a *t* test this difference is highly significant ($p << 0.01$). Although Ridgway did not mention any phenotypic intermediates, we found that of the 20 specimens from Nayarit housed in the MLZ, 19 have a nape color between reddish-orange and yellow, suggesting intergradation (MLZ:Bird: 28042–28045, 28533–28535, 41948, 41957, 41973, 41978, 47952–47954, 47956, 47961, 58244–58246). These specimens with intermediate nape color, collected by Chester C. Lamb across the entire state of Nayarit between 1937 and 1950, represent an apparently wide contact zone (Figure 1). Intermediate specimens were collected as far north as near Acaponeta (22.5° N, 105.4° W), many in the San Blas area, and another series of intermediates in northwestern Jalisco near Puerto Vallarta. That San Blas is in the area of intermediacy, as well as a focus for ornithology and birding along Mexico's Pacific coast, has likely contributed to the neglect of geographic variation in the Golden-cheeked Woodpecker.

These specimens of intermediate plumage from the transition zone between the subspecies *chrysogenys* and *flavinuchus* raise questions about the extent of historic and current gene flow between the two populations. The transition between the

Table 1 Variation in Size by Sex and Subspecies in the Golden-cheeked Woodpecker[a]

	Males	Females
Subspecies pooled		
n	91	98
Wing chord		
mean	120.8	118.3
range	109.4–129.3	109.6–130.4
standard error	0.34	0.36
Culmen		
mean	25.2	23.3
range	22.1–27.9	21.0–26.9
standard error	0.15	0.12
M. c. flavinuchus		
n	68	75
Wing chord		
mean	121.3	118.8
range	112.5–129.3	109.6–130.4
standard error	0.38	0.42
Culmen		
mean	25.4	23.47
range	22.5–29.1	21.0–26.9
standard error	0.16	0.15
M. c. chrysogenys		
n	17	17
Wing chord		
mean	118.8	116.2
range	109.4–123.0	112.2–122.2
standard error	0.78	0.56
Culmen		
mean	25.1	22.7
range	22.1–23.9	21.9–23.9
standard error	0.38	0.14

[a]Specimens from Nayarit, in the zone of intergradation between the two subspecies, excluded.

subspecies in Nayarit occurs where the Pacific coastal plain is interrupted by the Trans-Mexican Volcanic Belt, which acts as a biogeographic barrier to gene flow and distribution in many taxa (Howell and Webb 1995). Arbeláez-Cortés et al. (2014) found divergence in mitochondrial DNA between *M. c. chrysogenys* and *M. c. flavinuchus* but no differences across four nuclear loci, which suggests either considerable gene flow or recent divergence. We downloaded the gene sequences generated by Arbeláez-Cortés et al. (2014), available from GenBank, for the mitochondrial gene ND2 from samples of two individuals each of *chrysogenys* from Sinaloa (GenBank numbers: KF752976 and KF752977) and *flavinuchus* from Guerrero (GenBank numbers: KF752962 and KF752978) and used the program Geneious, version 8.0.5 (Biomatters, Auckland, New Zealand), to align them. Sequences were chosen away from the zone of intergradation. Our alignment indicated that the subspecies differ in 5 of the 463 base pairs of ND2. Neither we nor Arbeláez-Cortés et al. (2014) detected any other differences between the subspecies in this gene.

Our findings of phenotypic introgression, combined with equivocal evidence of intraspecific genetic divergence, make the Golden-cheeked Woodpecker a compelling

Figure 1. Specimens showing intergradation in nape color in the Golden-cheeked Woodpecker. Above, males, from left to right, MLZ 5911 (El Rosario, Sinaloa), 47953, 47956 (both San Blas, Nayarit), 30149 (Rincón, Guerrero). Below, females, from left to right, MLZ 5917 (El Rosario, Sinaloa), 47952, 47954, 47961 (these three San Blas, Nayarit), 30098 (Rincón, Guerrero). The specimens at the left end of each row are typical of *M. c. chrysogenys*, whereas those on the right ends are typical of *M. c. flavinuchus*.

species for further study, with possible implications for understanding intraspecific divergence across biogeographic barriers and updating our knowledge of the natural history of this Mexican endemic species.

We would like to thank the following collection managers for providing access to specimens: René Corado, Kimball Garrett, and Kathy Molina. We thank Daniel D. Gibson and Philip Unitt for their constructive reviews, which considerably improved the manuscript.

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FIRST RECORD OF THE PINE FLYCATCHER (*EMPIDONAX AFFINIS*) FOR ARIZONA AND THE UNITED STATES

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On the morning of 28 May 2016, Stejskal discovered an *Empidonax* flycatcher at Aliso Spring in the Santa Rita Mountains, Pima County, Arizona (31° 44′ 08″ N, 110° 48′10″ W). First hearing a distinctive "whit" note of an *Empidonax*, thinking it was likely from either a Dusky Flycatcher (*E. oberholseri*) or a Gray Flycatcher (*E. wrightii*), and realizing that either species would be unusual in southeastern Arizona in late May, he decided to locate and document the bird. Upon finding the flycatcher, he noticed that it appeared odd, appearing superficially like a Dusky but having an entirely orange lower mandible, as in a Western Flycatcher (*E. occidentalis* or *E. difficilis*). The bird also appeared to be investigating potential nesting sites, which would be unprecedented for either the Dusky Flycatcher or the Gray Flycatcher in this region of Arizona. That morning and afternoon, and the following morning, he photographed the bird extensively and recorded its call notes. Upon his return to Tucson on 29 May he sent both the photos and sound recordings to Chris D. Benesh and to Rosenberg for opinion and analysis. He suspected the bird was a Pine Flycatcher (*E. affinis*), with which he was familiar from the mountains of western Mexico. Benesh and Rosenberg compared the photos directly to photos published online of both the Dusky and Pine flycatchers and, more importantly, compared sonograms of the call notes of the Aliso Spring bird directly to recordings of both the Dusky and Pine flycatchers that they had recorded and uploaded to www.xeno-canto.org. After careful analysis, we agreed that the bird was indeed a Pine Flycatcher, representing a first record for Arizona and the United States. This record has been accepted by both the Arizona Bird Committee and the American Birding Association's Checklist Committtee. We returned to Aliso Spring on 30 May 2016 to obtain additional photos and recordings. The bird was seen almost daily through 7 July 2016. It was evidently a female, as it built a nest by 6 June, was seen often sitting on the nest through 7 July (Figure 3), and was never heard singing, just giving call notes. Visits to the area on 8 and 9 July failed to reveal it.

In the field, identifying any *Empidonax* flycatcher by plumage alone is fraught with pitfalls. This individual was identified by a combination of plumage, structure, and, most importantly, analysis of distinctive call notes. The plumage was rather dull, mostly grayish olive, more like a Hammond's (*E. hammondii*), Dusky, or Gray than the brighter greenish Western. It had somewhat worn but distinct whitish wingbars and dusky underparts that were more yellow in the center of the lower belly and whiter on the throat. The eye ring was almond shaped, being more extensive in front of and behind the eye. The lower mandible was entirely orange, the crown distinctively peaked, and the primary extension relatively long, more as in a Hammond's than in a Dusky (Figures 1 and 2). While identifying confusing *Empidonax* species by plumage is always a challenge, each species has a distinct call note. This bird gave a distinct "whit" note, which was qualitatively very different the call notes of Hammond's or the Western flycatchers, as well as from most species of *Empidonax* breeding in eastern North America. Most similar were the Dusky and Gray, but the latter was excluded on the basis of plumage, a completely orange lower mandible, and behavior (the bird did not dip its tail). The distinction between the call notes of the Pine and Dusky Flycatchers is not obvious, even to a trained ear, but spectrograms show that the call

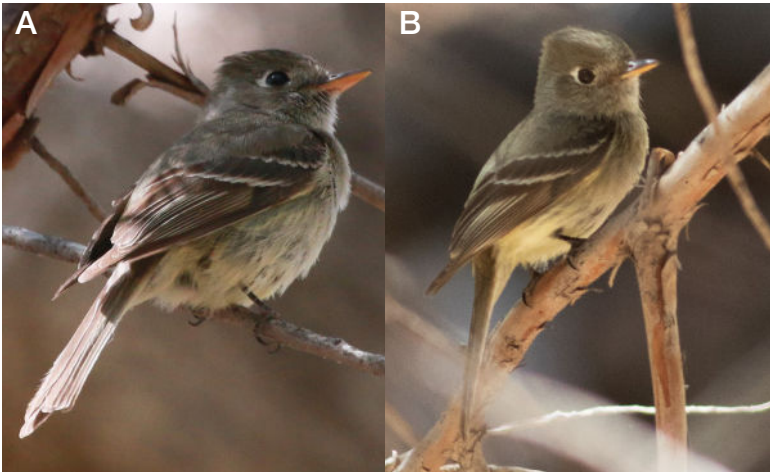

Figure 1. Pine Flycatcher at Aliso Spring, Arizona. Note the overall grayish-olive coloration, the peaked crown, entirely pale orange lower mandible, and relatively long primary projection. (A), 28 May 2016; (B), 30 May 2016.

Photos by David Stejskal (A) and Gary H. Rosenberg (B)

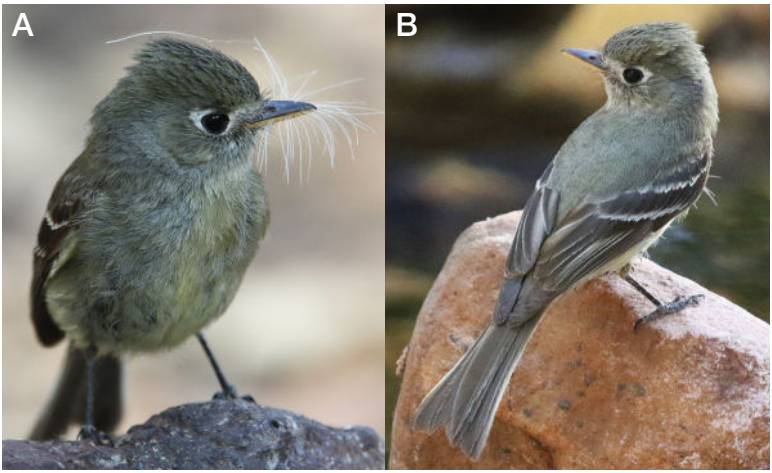

Figure 2. Pine Flycatcher at Aliso Spring, Arizona. (A) The bird collecting nesting material on 6 June 2016. (B) Photo taken on 4 June 2016 showing the upperpart coloration and long primary projection.

Photos by Laurens Halsey (A) and Greg Scyphers (B)

Figure 3. Pine Flycatcher sitting on a nest on 24 June 2016.

Photo by Laurens Halsey

of the Pine is consistently and distinctly lower in frequency than that of the Dusky. Comparison of spectrograms of the call notes of the bird at Aliso Spring with those of both known Pine and Dusky Flycatchers show that it was indeed a Pine (Figure 4).

The Pine Flycatcher is found in pine–oak forest from southeastern Sonora and southwestern Chihuahua south through the mountains of Mexico to southern Guatemala (Howell and Webb 1995, Russell and Monson 1998, Farnsworth and Lebbin 2018). Although Russell and Monson (1998) listed only one specimen from Sonora,

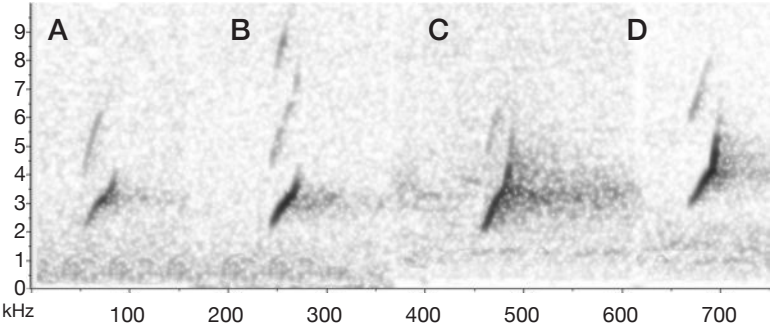

Figure 4. Comparison of call notes of the Aliso Spring Pine Flycatcher (A and B), a Pine Flycatcher recorded in Colima, Mexico (C), and a Dusky Flycatcher recorded in Oaxaca, Mexico (D), during the winter. Note that Pine Flycatcher's call is distinctly lower-pitched than the Dusky Flycatcher's.

Recordings by Gary H. Rosenberg (A) and Chris D. Benesh (B–D)

more recent exploration in Sonora suggests that the Pine Flycatcher is regular in the Yécora and La India areas, some 350-400 km southeast of Aliso Spring (www.eBird.org).

We thank Laurens Halsey and Greg Scyphers for contributing photos for this note. We thank Chris D. Benesh, who supplied recordings and helped with the spectrogram production and analysis.

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FEATURED PHOTO

REPLACEMENT OF PRIMARIES DURING PREALTERNATE MOLTS IN NORTH AMERICAN *LARUS* GULLS

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ABSTRACT: We document replacement of primaries during the prealternate molt in two and possibly three species of North American gulls of the genus *Larus*, including the first report of such replacement in an adult Yellow-footed Gull (*L. livens*), the first report in the Lesser Black-backed Gull (*L. fuscus*) in the Americas, and possibly the first report for the American Herring Gull (*L. argentatus smithsonianus*). The incidence and extent of replacement of primaries is greater during the second prealternate than during subsequent prealternate molts, which is likely related to second-cycle molts in *Larus* being earlier than the subsequent molts. The second prealternate molt of the Lesser Black-backed Gull includes up to all flight feathers (but not all wing coverts). The sequence of replacement of primaries during the prealternate molt matches that of the prebasic molt, starting at the innermost primary and proceeding distally; however, the sequence of replacement of secondaries can differ from that during the prebasic molt, perhaps because of a difference in the underlying mechanisms controlling these molts. Prealternate molt of inner primaries can begin before prebasic molt of outer primaries is completed, a pattern resembling Staffelmauser, but all evidence suggests that the ensuing prebasic molt of the primaries begins at p1, as in terns, rather than at the point where the inner molt wave is suspended, as during Staffelmauser in other large volant birds. We propose that the occurrence and extent of prealternate molt of the remiges in *Larus* is correlated with the latitude at which an individual winters and/or the timing of the prebasic molt the year before, as much as or more so than with phylogeny. The possible replacement of primaries during the second prealternate molt in North American but not European subspecies of the Herring Gull could relate to some individuals of the American subspecies wintering farther south.

The molts of most gulls are complex, protracted, and variable, even within a species (Howell and Dunn 2007, Pyle 2008, Howell 2010). Adults of all North American gulls undergo a complete definitive prebasic molt that begins shortly after breeding, primarily in July or August, and usually extends through October or November, sometimes later in species or individuals that migrate to tropical or austral latitudes for the winter. During this molt, primaries are invariably replaced distally from the innermost (p1) to the outermost (p10), and secondaries are replaced distally from the tertials and proximally from two nodes, at the outermost (s1) and the fifth from outermost (s5) secondaries (Pyle 2008). Most species also undergo a partial definitive prealternate molt, which, in the larger species of the genus *Larus*, is unusual in beginning as early as September or October (Howell and Dunn 2007, Pyle 2008) rather than in late winter or early spring, as is typical of

most other North American birds. In pre-breeding birds, during the second and third cycles of molt, the pattern is essentially similar, although in these subadults the prebasic molt often starts earlier in the spring or summer than in adults, presumably because of the lack of time and energy constraints related to breeding. In the second and third cycles, the prealternate molt may also begin earlier and is often more extensive than the definitive prealternate molt, perhaps also because the annual cycle allows additional time and energy for replacing feathers.

The second, third, and definitive prealternate molts of *Larus* gulls are often protracted, extending from fall through March or April, although in species wintering at colder, more northerly latitudes they are often suspended for the winter. In most or all species this molt can include, variably, some to most body feathers and upperwing secondary coverts, up to three tertials, and occasionally the central rectrices, but no other flight feathers (Dwight 1925, Cramp and Simmons 1983, Howell and Dunn 2007, Pyle 2008). The extended and variable nature of this molt, coupled with "molt–plumage interactions" (the gradual change of feathers' appearance during a protracted molt as changing hormone levels induce a change in pigment deposition; cf. Pyle 2013a), leads to substantial variation in gulls' second and third alternate plumages.

Two Northern Hemisphere species of *Larus* have been recorded undergoing replacement of primaries during a prealternate molt. Yellow-footed Gulls (*L. livens*) may replace up to eight inner primaries during the second prealternate molt and six inner primaries during the third prealternate molt (Howell and Dunn 2007, Pyle 2008). They may also replace up to all rectrices and at least two outer secondaries, but the full range of flight-feather replacement during prealternate molts in this species requires further study. Adult Yellow-footed Gulls have not been recorded replacing flight feathers other than the tertials and central rectrices during the definitive prealternate molt (Howell and Dunn 2007, Pyle 2008).

In European populations of the Lesser Black-backed Gull (*L. fuscus*), the second prealternate molt can include up to many, and possibly all, primaries, secondaries, and rectrices (Muusse et al. 2005). The extent of molt varies geographically in this species, with replacement of remiges during the second prealternate molt being more extensive in nominate *L. f. fuscus* breeding in Finland than in *intermedius* of Scandinavia and *graellsii* of western Europe and Iceland (Jonsson 1998), although inner primaries replaced during the prealternate molt have been recorded occasionally in both of the last two subspecies (Muusse et al. 2005). Replacement of primaries and secondaries during the second prealternate molt has not previously been reported in Lesser Black-backed Gulls in North America, which are assumed to be primarily of *graellsii* (Howell and Dunn 2007). We could find no mention in the literature of other species of *Larus* gulls in Europe or North America replacing primaries during a prealternate molt.

REPLACEMENT OF PRIMARIES DURING PREALTERNATE MOLT IN THE YELLOW-FOOTED AND LESSER BLACK-BACKED GULLS

While studying gulls at the Salton Sea, California, from 28 to 30 September 2017, Ayyash noted at least eight third-cycle and adult Yellow-footed Gulls showing two waves of primary molt, symmetrical in both wings. Figure 1 shows an adult that is completing the prebasic molt with the outermost primaries (p9 and p10) and proximal to middle secondaries (between s5 and the tertials) growing. The bird is also undergoing a second wave of primary molt, with p1–p3 newly replaced and p4 growing. The primary coverts corresponding to these inner primaries are similarly new or being replaced. We infer that the inner wave of primary replacement is part of an early prealternate molt that had begun before the prebasic molt of outer primaries was completed. Other Yellow-footed Gulls that Ayyash photographed showed similar patterns, with outer primaries growing and feathers from p1 to p4 being replaced as part of a second wave of molt. The bird in Figure 1, along with at least two other individuals Ayyash photographed, appear to be adults (4th cycle or older) from their uniformly gray upperwing feathers, lacking the brown or dusky coloration to the older generation of primary coverts typical of the third basic plumage. We are aware of no other reports of replacement

Figure 1. Adult Yellow-footed Gull at the Salton Sea, California, on 29 September 2017. Note the two waves of concurrent primary molt, with p9 and p10 growing (outer wave) and p4 growing (inner wave). The inner wave is part of a definitive prealternate molt. The pure gray primary coverts identify this bird as an adult in its fourth plumage cycle or older. Replacement of primaries during the definitive prebasic molt has not been recorded previously in the genus *Larus*.

Photo by Amar Ayyash

primaries during the prealternate molt in adults of the Yellow-footed Gull or any other species of *Larus*.

Figure 2A shows a second-cycle Lesser Black-backed Gull photographed by Bartosik on Quintana Island, Brazoria County, Texas, on 7 January 2012. This individual was undergoing sequential molt of the primaries, with p1–p8 new, p9 growing, and p10 old on both wings; the primary coverts were being replaced in the same pattern. Among the secondaries, s1–s4, s6–s7, and the tertials were new, while s5 had dropped on both wings. All rectrices appear to have been replaced recently except for the r5 on the right side. The timing of the molt, the secondaries patterned as in definitive plumage, and fresher and broader outer primaries signifying the second basic plumage together indicate that the inner primaries and new secondaries and rectrices were of the alternate plumage. This pattern matches that of the second prealternate molt as reported for many Lesser Black-backed Gulls in Europe (Muusse et al. 2005). Bartosik was able to document progression of molt in this individual through 21 April 2012, by which time all primaries, secondaries, and rectrices had been replaced, with the p10 growing on both wings (Figure 2B). Interestingly, however, on the upperwing of this individual, most of the secondary coverts, including all of the greater coverts, appeared to be retained from the basic plumage through this date.

Among about a dozen second-cycle Lesser Black-backed Gulls in prealternate molt observed by Bartosik during the winter and spring of 2012, the majority were not replacing any remiges other than the tertials. An exception was one other second-cycle bird photographed on 7 January that had replaced or was growing p1–p7 and one or more secondaries between s1 and s3 on both wings (Figure 3A). Another was a third-cycle or fourth-cycle bird photographed that same day and molting p1 (both) and p2 (right side only) while p10 was still growing (Figure 3B)—a pattern similar to that of the Yellow-footed Gull in Figure 1. On the second-cycle bird in Figure 3A, the outer secondaries were being replaced in the order s1–s3–s2 on both wings. On the older bird in Figure 3B, the innermost primary coverts were also new or being replaced, whereas few if any other wing or tail feathers had been recently renewed. To our knowledge, these photos represent the first documentation of Lesser Black-backed Gulls replacing primaries during the second prealternate molt in North America, or replacing primaries during the third or fourth prealternate molt anywhere in the species' range.

REPLACEMENT OF PRIMARIES DURING THE PREALTERNATE MOLT IN THE AMERICAN HERRING GULL?

The outside back cover of this issue shows two images of an American Herring Gull (*L. argentatus smithsonianus*), photographed by Ayyash on 22 November 2015 in Chicago, Illinois. On each wing, the five inner primaries (p1–p5) contrast substantially in color pattern with the six outer primaries. The replaced inner primaries are definitive in appearance whereas the outer primaries are typical of the second basic plumage. On the bird's upper surface, the inner four primary coverts, most or all feathers of the mantle (back feathers and scapulars), most median coverts, scattered lesser secondary and lesser primary coverts, a few greater coverts, and the three tertials were also

patterned as in the definitive plumage. These feathers contrasted with the remaining upperwing coverts and secondaries, which appeared typical of the second basic plumage. The wear of the inner primaries appeared to match that of the other definitive-like feathers of the second alternate plumage, suggesting that all these feathers were of the same generation. Other than the inner primaries, the appearance of this bird is consistent with the Herring Gull's second alternate plumage at this time of year (Howell and Dunn 2007).

The upper image on the inside back cover shows another American Herring Gull, photographed by Ayyash on 25 January 2013 in Whitting, Indiana. Similarly, it appears to be in second alternate plumage with contrasting inner primaries (p1–p3) patterned as in the definitive plumage. These contrasting primaries seem newer than the outer primaries (p4–p10) and to be of the same generation as the other wing feathers, of the second alternate plumage. If the inner primaries of these gulls are indeed of the second alternate plumage, as can be found in the Yellow-footed and Lesser Black-backed gulls at this time of year, the photo represents the first documentation of a Herring Gull replacing primaries during the prealternate molt.

Another possibility, however, could be that these birds were in their third cycle but slow to mature except for the advanced appearance of the inner primaries. Most of this bird's plumage, including the basic (older) upperwing coverts, outer primaries, secondaries, and rectrices, can be matched by both fast-maturing second-cycle and slow-maturing third-cycle birds (Howell et al. 2007, Pyle 2008). Although a few third-cycle birds show all of these features, most of their basic plumage is more definitive in appearance. In a third-cycle gull, molt–plumage interactions could explain a transition from inner primaries matching the definitive plumage to outer primaries matching the second basic plumage. However, such molt–plumage interactions usually result in a gradual change in color pattern as pigment-deposition signals shift over the time of replacement (see Pyle 2013a). For example, the lower image on the inside back cover shows a Herring Gull, more likely in its third than its second cycle, photographed by Ayyash on 14 September 2014 in New Buffalo, Michigan. Whatever its age, note how, from inner to outer, the primaries gradually become less like the definitive plumage, not abruptly as on the other two Herring Gulls.

The Gull Research Organisation (www.gull-research.org/index.html) has posted many photos of third-cycle Herring Gulls, banded as chicks and so of known age, of both European and North American subspecies. In most of these, the transition in coloration of the inner primaries is gradual, as in the bird in the lower photo on this issue's inside back cover. Their inner primaries do not match the freshness of the tertials, which are of the alternate plumage. In general, their wings and tails look more like the definitive plumage than do those of the Herring Gulls on the outside back cover and inside back cover, upper photo. In most of the birds depicted at the Gull Research Organisation's website, fewer tertials and wing coverts are of the alternate plumage, which may indicate that the prealternate molt did not extend to replacing the primaries. Some birds, however, such as the known third-cycle bird with the band DKC 4298575 and photographed in the Netherlands on 30 October 2015 (http://www.gull-research.org/hg/hg3cy/4298575.html), more closely resemble the one on this issue's back

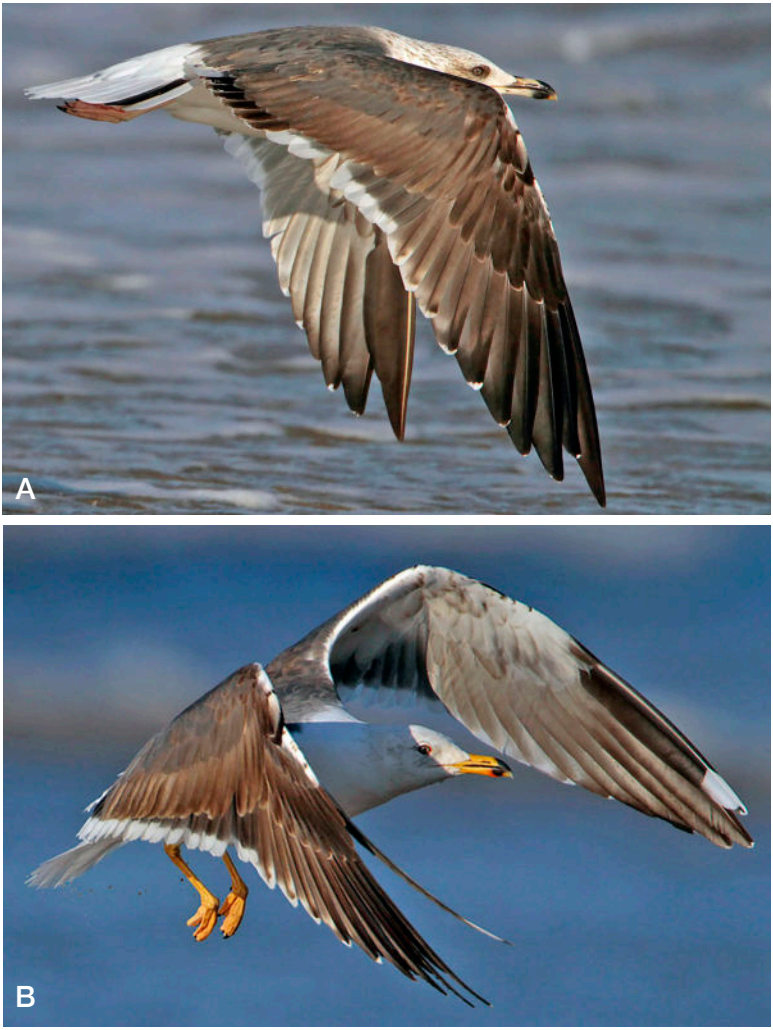

Figure 2. Second-cycle Lesser Black-backed Gull at Quintana Island, Brazoria County, Texas, 7 January 2012 (A) and 21 April 2012 (B). Note the progession of prealternate molt. In January (A), p1–p8 have been replaced and p9 is growing. By April (B), the outermost primary (p10) is completing growth and all other primaries, secondaries, and rectrices, but not all wing coverts, have been replaced during the second prealternate molt. These photos represent the first evidence for prealternate molt including primaries in the Lesser Black-backed Gull in North America.

Photos by Mark Bartosik

Figure 3. Second-cycle (A) and third-cycle (B) Lesser Black-backed Gulls at Quintana Island, Brazoria County, Texas, on 7 January 2012. (A) The second-cycle bird is undergoing the prealternate primary molt, which had reached p7. Secondaries s1–s3, as well as the tertials and adjacent inner secondaries are new or growing. Note that the sequence of replacement of the outer secondaries on both wings, s1–s3–s2, is not consistent with the sequence during the prebasic molt. (B) This third-cycle (or possibly fourth-cycle) Lesser Black-backed Gull has both the outermost (p10) and two innermost (p1–p2) primaries growing on both wings. We infer that the inner wave of primary molt represents the start of the third prealternate molt. This photo constitutes the first documentation of replacement of primaries during this molt in the Lesser Black-backed Gull.

Photos by Mark Bartosik

cover. We believe it is still an open question whether or not the Herring Gull on the back cover is in its second cycle with inner primaries replaced during the second prealternate molt or in its third cycle with all primaries of the third basic plumage. Nevertheless, we believe that these photographs suggest that some small proportion of American Herring Gulls replaces the inner primaries during the second prealternate molt.

DISCUSSION

We document replacement of primaries during the prealternate molt in two and possibly three species of *Larus* in North America. The timing of this replacement appears to be consistent, with up to p1–p4 being replaced sequentially by late September in Yellow-footed Gulls in southern California, up to p1–p5 possibly being replaced by mid November in American Herring Gulls in Chicago, and up to p1–p9 being replaced by early January and p1–p10 by late April in Lesser Black-backed Gulls along the Texas coast. We infer that to have reached these extents by these dates, replacement of primaries during the prealternate molt began as early as late August or early September. This schedule would be consistent with replacement of median coverts and other feathers as early as September during the prealternate molt (Howell and Dunn 2007, Pyle 2008), provided that the inner primaries had dropped before other feathers, as typical of a complete molt. As far as we have observed, this timing may apply only to the second prealternate molt in the Herring Gull and the second and third prealternate molts in the Lesser Black-backed Gull, whereas it may apply to these as well as the definitive prealternate molt in the Yellow-footed Gull. Our one example of primaries being replaced during the third or fourth prealternate molt in the Lesser Black-backed Gull indicates that this molt started later, likely sometime in late December.

SEQUENCE OF REPLACEMENT OF REMIGES

The sequence of replacement of primaries during the prealternate molt in these and other species of *Larus* matches that during the second and later prebasic molts, starting at p1 and proceeding distally. This typical sequence differs from the sequence of replacement of primaries during the definitive prealternate molt documented in an Indigo Bunting (*Passerina cyanea*) and apparently some shorebirds (Pearson 1984, Marks 1993, Balachandran and Hussain 1998; cf. Wolfe and Pyle 2011). In those cases, the primaries appear to be replaced distally from a point in the middle of the tract, rather than from p1. Interestingly, in these passerines and shorebirds, the primaries are also replaced in this "eccentric" sequence during the preformative molt (Pyle 1997, 2008). By contrast, in a case of atypical replacement of primaries during prealternate molt in the Yellow Warbler (*Setophaga petechia*), that replacement began at p1 (Pyle and Kayhart 2010), as in our three species of *Larus*. In none of these four species is replacement of primaries during the preformative molt eccentric, although at least one species of *Larus*, *heermanni* (Heermann's Gull), can show an eccentric preformative molt

(Howell and Dunn 2007, Pyle 2008). Further study is needed to ascertain whether or not there is a correlation between the sequence of replacement of primaries during the preformative and prealternate molts within a species.

The sequence of replacement of secondaries during the prealternate molt in the Lesser Black-backed Gulls appears to differ from that during the second and later definitive prebasic molts in *Larus* in general. The prebasic molt begins with the tertials (likely proceeding bidirectionally from the second tertial) and continues proximally from s1 and s5 (Pyle 2008). On both wings of the Lesser Black-backed Gull that Bartosik photographed at Quintana Island, Texas (e.g., Figure 2A, B), the sequence of the prealternate molt of the tertials was similar, and a wave of molt ran proximally from s1. But the other wave running proximally commenced at s6 rather than s5, which was instead the last feather replaced in the wave commencing at s1. On the other Lesser Black-backed Gull replacing primaries (Figure 3A), the secondaries were being replaced in atypical sequence as well, with s3 preceding s2. Among second-cycle Lesser Black-backed Gulls photographed in Europe the pattern of replacement of secondaries during prealternate molt is inconsistent (www.gull-research.org/index.html; Figure 4). Although in all birds the tertials appeared to include a node, s1, s2, s5, s6, s7, s9, and s12 also functioned as a node in various individuals. In many (but not all) birds s1 was a node. On some birds (e.g., Figure 4) asymmetry between the two wings was substantial.

Within an order of birds, the sequence of replacement of the remiges during the prebasic molt is quite fixed (Pyle 2013b). As discussed by Pyle (2013c), the prebasic molt may involve, in addition to feather replacement, a metabolic process encompassing most body tissues, as part of a cycle of restoration ancestral to reptiles and most or all vertebrates (King 1972, Murphy 1996, Kuenzel 2003). But inserted prealternate molts may have evolved simply to replace worn feathers and may not be accompanied by such a substantial physiological process. We suggest that in *Larus* the apparent differences in the sequence of replacement of secondaries between the prebasic and prealternate molts could be related to such a difference in the underlying mechanisms controlling molt. For this concept to be explored further, a better understanding of variation in sequences of gulls' replacement of the secondaries, during both the prebasic and prealternate molt, is needed.

Prealternate molt of inner primaries as early as late August means that this molt starts before prebasic molt of the outer primaries is completed, as we have shown in the Yellow-footed Gull and third or fourth plumage cycles of the Lesser Black-backed Gull. The result, multiple concurrent waves of primary molt, mimics Staffelmauser (Pyle 2006). Indeed, Stresemann and Stresemann (1966) implied that nominate *Larus fuscus fuscus* may undergo Staffelmauser. However, we suspect that the ensuing prebasic molt of the primaries begins at p1, rather than at the point where the inner molt wave was suspended, as occurs during Staffelmauser. We agree with M. Muusse (pers. comm.) that the molt of the Lesser Black-backed Gull reported as Staffelmauser by the Stresemanns likely represented the beginning of the second prealternate molt overlapping the end of the second prebasic molt of primaries. In this regard, the prealternate molt of the primaries in gulls

Figure 4. Second-cycle Lesser Black-backed Gull (presumably of subspecies *L. f. graellsii*) at Texel, the Netherlands, on 1 May 2006. The bird was banded as a chick so its age is known. The inner five primaries (p1–p5) on the left wing and the inner six primaries (p1–p6) on the right wing had been replaced during the second prealternate molt, after which this molt was arrested. All secondaries had been replaced, but note that the order of this replacement appears to have been asymmetrical, irregular, and different from the continuous sequence of replacement during the prebasic molt. All 12 rectrices had also been replaced during the second prealternate molt.

Photo by Mars Muusse

is similar to that of terns (Pyle 2008), suggesting that this pattern may have been inherited from a common ancestor.

GEOGRAPHIC VARIATION IN THE TIMING AND EXTENT OF MOLT

In Europe, replacement of primaries during the prealternate molt is more frequent in the nominate subspecies of the Lesser Black-backed Gull than in the other subspecies. This difference led Jonsson (1998) and Muusse et al. (2005) to infer that the patterns of molt in this species vary by phylogeny. But Muusse et al. (2005) also documented replacement of primaries during prealternate molt in two individuals of *intermedius* and one of *graellsii*. Other examples of these subspecies molting primaries during the prealternate molt, including the bird in Figure 4, may be seen at www.gull-research.org/index.html. We agree with Howell (2001) and Pyle (2008), however, that the occurrence and extent of prealternate molt of the primaries in *Larus* may be related more to the distance an individual migrates and latitude at which it winters than to its phylogeny. Such patterns have been observed in other species of Charadriiformes, including shorebirds, terns, and jaegers

(Pyle 2008:500–505, 691–694; Pyle and Reid 2016), and even in passerines (Pyle 1998). In migratory birds that winter in the Southern Hemisphere and tropics, molt is more extensive than in those that winter in the North Temperate Zone. The difference may be related to differences in the light regimes and greater supply of food at lower latitudes and in the Southern Hemisphere during the boreal winter. Such factors could also explain the molt of the Franklin's Gull (*Leucophaeus pipixcan*), which winters primarily in southern South America and is the only gull species known in which the prealternate molt is normally complete (Howell and Dunn 2007, Pyle 2008). In the Lesser Black-backed Gull, *Larus fuscus fuscus* winters primarily in tropical Africa and southwestern Asia, whereas subspecies *intermedius* and *graellsii* winter farther north in southwestern Europe and northern Africa (Jonsson 1998). A role for latitude of wintering would thus be consistent with the observations in Europe of many examples of nominate *fuscus* but only few of *intermedius* and *graellsii* (that under this premise may have wintered farther south) replacing primaries during the second prealternate molt. The same pattern might be expected in *L.* [*f.?*] *taimyrensis*, as it winters as far south as southeast Asia (N. Moores pers. comm.).

The Lesser Black-backed Gulls, presumably of subspecies *graellsii*, that were replacing their primaries during prealternate molt in coastal Texas (Figures 2 and 3) were wintering at 29° N. This latitude, equivalent to north Africa through northern India, is perhaps near the southern edge of the winter range of *intermedius* and *graellsii*. It might be consistent with the latitudes at which some Lesser Black-backed Gulls may replace primaries during their prealternate molt, regardless of their subspecies. On the other hand, many Lesser Black-backed Gulls along the Texas coast had replaced no primaries during the second prealternate molt.

If latitude is a primary factor influencing prealternate molt, how do we explain the Herring Gulls with inner primaries possibly replaced in the prealternate molt but wintering at the latitude of Chicago and northwestern Indiana (41–42° N)? Perhaps a more important factor in the incidence of prealternate primary molt in *Larus* may the timing of the prebasic molt the previous spring and early summer. In these gulls, the prebasic molt is generally earlier in the second cycle than in the third cycle, and prebasic molt in the third cycle is generally earlier than in older adults (Pyle 2008). We suspect this pattern is responsible for the greater incidence of replacement of primaries during predefinitive prealternate molt than during definitive prealternate molt. Variation among species and individuals in the timing of the second prebasic molt may, in turn, be related to latitude of wintering. We expect that, on average, birds wintering farther south molt earlier than those wintering farther north. For example, a Lesser Black-backed Gull in San Diego, California (latitude 32.7° N), was beginning its third prebasic molt when it was photographed on 23 March 2012 (California Bird Records Committee record number 2012-942, reported by Pike et al. 2014). This date is earlier than expected for prebasic molt of this species elsewhere (Cramp and Simmons 1983, Howell and Dunn 2007, Pyle 2008). Might so early a date then lead to a higher probability of replacement of primaries during the third prealternate molt?

Had the Herring Gulls wintering at Chicago (this issue's back cover) spent

the previous winter and spring farther south, they may have begun the second prebasic molt earlier, leading to replacement of primaries during the second prealternate molt, irrespective of where these individuals spent their second winter. American Herring Gulls may winter as far south as northern South America (Nisbet et al. 2017), farther south than European subspecies of the Herring Gull (Cramp and Simmons 1983). Wintering farther north could explain why no evidence of primaries replaced during a prealternate molt has been noted among thousands of Herring Gulls observed and photographed in Europe (M. Muusse, P. Adriaens pers. comm.), even though it may occur in a small proportion of North American Herring Gulls, in theory those that have wintered in tropical or equatorial latitudes.

MORE STUDY NEEDED

These and other questions about prealternate molt in *Larus* remain to be answered through further observation and study. Why might replacement of primaries during the prealternate molt be largely restricted to the second cycle of the Lesser Black-backed and perhaps American Herring Gull but continue through later cycles in the Yellow-footed Gull? Could earlier breeding and molt, along with more intense exposure to the sun, explain the prevalence of primaries being replaced during the prealternate molt of the Yellow-footed Gull, while they are apparently not replaced during this molt in the Western Gulls (*L. occidentalis wymani*) breeding in cooler and foggier conditions on the Pacific side of Baja California? Or has such molt just gone so far undetected? Finally, if latitude of wintering affects whether gulls replace primaries during their prealternate molt, why has it not been recorded yet in Laughing Gulls (*Leucophaeus atricilla*) or Sabine's Gulls (*Xema sabini*) wintering in northern South America? Atypical prealternate molt of the primaries has also been observed in passerines and shorebirds (see above). Along with the possible atypical prealternate molt of the Herring Gull we have reported here, such molt implies a mechanism underlying the occasional replacement of primaries in some individuals that have, during the prealternate molt, replaced feathers in other tracts more extensively. Further study of these underlying mechanisms could lead to a better understanding of this phenomenon in gulls.

Finally, what are the implications for assessing the age and plumage of gulls whose prealternate molt is more extensive, including primaries and secondaries? In spring, second-cycle Lesser Black-backed Gulls replacing all remiges during an extensive prealternate molt, such as the one shown in Figures 2 and 3 and others documented in Europe (Muusse et al. 2005), might be difficult or impossible to distinguish from third-cycle individuals, especially given how variable both the second and third alternate plumages can be in *Larus*. In Figure 2B, for example, note the large white mirror on p10, replaced during the second prealternate molt. Likewise, the often cited earlier maturation of the "three-year" Yellow-footed vs. the "four-year" Western Gull appears to be due to the Yellow-footed's more extensive prealternate molt rather than to a difference in the intrinsic rate of plumage maturation, as is often assumed. As if evaluating the ages of gulls in predefinitive plumages was not difficult enough (Howell and Dunn 2007, Pyle 2008), extensive

prealternate molt, including the primaries, can only reduce the accuracy of such evaluations further (cf. Figure 3B).

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- two have served on the California Bird Records Committee,
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Second-cycle or third-cycle Herring Gull at Whiting, Indiana, on 25 January 2013. The inner three primaries on each wing of this bird appear fresher than the outer primaries. They may represent the second alternate plumage (see text).

Third-cycle (or possibly second-cycle) Herring Gull at New Buffalo, Michigan, on 14 September 2014. Unlike the other birds illustrated on this issue's back cover, in this individual the pattern of the inner five primaries changes gradually from feather to feather, with no abrupt contrast. Otherwise this bird closely resembles the one on the outside back cover, although the prealternate molt of the other body and wing feathers has not advanced as far.

Photos by Amar Ayyash

Back cover "Featured Photos" by Amar Ayyash of Orland Park, Illinois: American Herring Gull (*Larus argentatus smithsonianus*) at Chicago, Illinois, 22 November 2015. Note the contrast between the inner five primaries, patterned as in the definitive plumage, with the outer primaries, patterned as in the second plumage cycle. The inner primaries may have been replaced during a prealternate molt.