First Successful United States Nesting of Heermann's Gull: Challenges of an Urban Colonist

Don Roberson
282 Grove Acre Avenue
Pacific Grove, California 93950
(creagrus@montereybay.com)

Stephen F. Bailey
Pacific Grove Museum of Natural History
165 Forest Avenue
Pacific Grove, California 93950
(sfbailey@mbay.net)

Rita Carratello
282 Grove Acre Avenue
Pacific Grove, California 93950
(ritacar@yahoo.com)

Abstract

Heermann's Gull (*Larus heermanni*) is a colonial breeder confined mostly to islands in the Gulf of California in Mexico. The primary colony is on Isla Rasa, where 130,000 pairs breed (Velarde 1999). Recent surveys found nesting on 11 other Mexican islands and estimated a world population of 300,000 to 450,000 adults (Mellink 2001) The northernmost breeding occurs at two small colonies on the Pacific side of the Baja California Peninsula (Jehl 1976). In spring and summer 1999 and 2000, three pairs nested successfully on islets in a small freshwater lake adjacent to Monterey Bay in Seaside, Monterey County, central California. The first successful nests in the United States, these were about 700 mi north of the nearest colony of 200 adults on Isla San Benito de Enmedio, Baja California, Mexico (Mellink 2001). Breeding was initiated again in spring 2001, but this time the attempt failed. We summarize our observations of this remarkable isolated colonization here. We also describe the background to these instances of breeding and trace several disparate phenomena that may or may not have impacted the results.

Review of the status of Heermann's Gull in California

Grinnell and Miller (1944) summarized the status of Heermann's Gull in California a half-century ago: "Summer and autumn visitant from south; present in greatest numbers from June to November, then diminishing toward March; only strays or non-breeders present during spring months, when nesting is taking place south of Mexican line. Prior to 1915, numbers, at least south from Bodega Bay, sufficient to warrant term 'common': then, by 1930, marked reduction took place even to complete absence in previously favorable spots, locally; now, 1943, good recovery is apparent." Over the last half-century in Monterey County, the Heermann's Gull has been a common summer and fall post-breeding visitor, with numbers typically arriving in early June and present in the thousands through November. Many have departed by Christmas and only a few non-breeders remain into May before the next influx (Roberson 1985).

Pacific sardines constitute 60% to 97% of the diet of Heermann's Gulls in the Gulf of California (Velarde et al. 1994). Assuming that same food source is used in Monterey Bay, we note that the collapse of the Monterey sardine fishery that occurred between the two World Wars could have contributed to the dearth in Heermann's Gulls recorded then. It may also be that our "typical" pattern of distribution is tied to decadal patterns of warm-water regimes off California. The middle decades of the twentieth century were periods of generally cooler waters off California (Chelton et al. 1982) without any significant El Niño–Southern Oscillation event (Rasmusson 1985). Indeed, the ten-year period from 1930–1940 was the longest stretch during the last century without an El Niño event anywhere in the world (Wallace 1985).

Previous nesting attempts in California

There were three prior attempts by Heermann's Gull to breed in California. In the summers of 1979, 1980, and 1981, a pair attempted to nest on Alcatraz Island in San Francisco Bay. Up to four eggs were laid in a season, but none hatched, possibly due to infertility (Howell et al. 1983). In May 1980, two pairs nested on a sea stack off Shell Beach, San Luis Obispo County, but these attempts were also believed to have been unsuccessful (Howell et al. 1983). A pair on Ano Nuevo Island, San Mateo County, hatched chicks three years in a row (1994–1996), but each time they were lost to predatory Western Gulls (*L. occidentalis*; Yee et al. 1995, Bailey et al. 1996). In all cases, the nesting attempts took place adjacent to breeding Western Gulls.

Anthropogenic influences on nesting waterbirds in the vicinity

In Monterey County, there has been a recent shift in Western Gull populations from the Big Sur coast to the Monterey Bay area. Bailey (1993) compared the governmental surveys of seabirds on the Monterey County coast in 1979 and 1989 to the findings of the county's Breeding Bird Atlas project and showed that there had been declines in the colonies along the wild Big Sur coast and increases near human-modified habitats. This shift paralleled expansions in the greater San Francisco Bay region in the 1980s. In this decade, the local Monterey County Western Gulls began using

manmade structures for nesting and apparently became more dependent on landfills with garbage.

Another man-aided avian population change in the 1980s in Monterey County was the introduction of a non-native population of Canada Geese (*Branta canadensis*). These large waterfowl, apparently of the large race *moffitti*, had been nesting in the San Francisco Bay area since the mid-1950s (Lidicker and McCollum 1979). The introduced Monterey County population was first noted breeding in upper Carmel Valley in 1984. This population had grown to 80 pairs by 1992 and had expanded down the Big Sur coast. The geese spread to Salinas (nesting first noted 1991) and Monterey (nesting documented 1992; Roberson and Tenney 1993). At Lake El Estero in downtown Monterey, the handful of geese that began nesting in 1992 has increased exponentially. By June 2001, Roberson counted 161 grown Canada Geese on this small urban lake, and two pairs accompanied seven downy young.

Just two km northeast of Lake El Estero is Roberts Lake in the City of Seaside. Roberts Lake is actually less than a fourth of what was once the much larger Laguna Grande, which existed as a freshwater drainage into Monterey Bay. Laguna Grande was divided by the creation of Del Monte Avenue. The shallow western portion, separated from Monterey Bay itself by State Highway 1, became Roberts Lake. Its water surface is just 4.4 hectares in size and averages only 1.2–2 m deep; it is partially rimmed by tules (*Scirpus robustus*). The lake and surrounding land is now a public park under the jurisdiction of the Monterey Peninsula Regional Park District. The western corner is a popular duck-feeding spot for the public with several tame ducks and farm geese. As the lake is adjacent to Monterey Bay, it is heavily used for freshwater-bathing by gulls. Western Gulls bathe and loaf there throughout the year, and a dozen species of gull have been recorded there in winter, including California's first Lesser Black-backed Gull *L. fuscus* (Binford 1978). Despite the heavy usage by Western Gulls and their widespread nesting on roofs, boats, and pilings in nearby Monterey harbor, none have attempted to nest on Roberts Lake, perhaps because it is a freshwater lake. Heermann's Gulls bathe and roost in and around the lake in fair numbers in summer and fall. Both Roberts Lake and Lake El Estero in Monterey are favored locales by the few non-breeding Heermann's still present each spring.

In 1990, the City of Seaside received a grant from the California Coastal Conservancy to dredge and maintain the lake's integrity. The project, undertaken by a joint public agency composed of the cities of Monterey and Seaside and the Park District, was completed in February 1991. Among the Coastal Conservancy requirements was the creation of two islets in the southern portion of the lake as wildlife habitat. These islets are made of interlocking piles covered with earth and planted with arroyo willow (*Salix lasiolepus*) and various shrubs and grasses. The total land surface area of these small islands is only 272.25 m^2. In addition, there is another larger islet at the east corner of the lake with denser stands of shrubs and rimmed with tules. The City of Seaside is required to maintain these islands.

Accounts of breeding at Roberts Lake

The unexpected breeding attempt by Heermann's Gulls on Roberts Lake was first discovered by Bailey on 26 April 1999 while he was scouting for a Big Sur Ornithology Lab birdathon. As this birdathon had been operated for several years before 1999 and the routes were scouted by numerous teams, we believe that 1999 was the first year in which Heermann's Gulls began nesting here. Bailey observed six alternate-plumaged adults on the two islets at the south end of Roberts Lake, and two nests were being incubated. A male repeatedly delivered bits of nesting material to an incubating female Egg-turning behaviors and copulation were also observed.

During following weeks, it became apparent that there were actually three nests on the two islets. A fourth nest was attempted along a berm that separates Roberts Lake from Del Monte Avenue This scrape had an egg on 13 May (D. Haupt, pers. comm.), but it was adjacent to a jogging and bike path, and the nest was abandoned by 20 May (A. Baldridge, pers. comm.). The pair involved may have tried to nest on the islet in the eastern corner of the lake, but the attempt was apparently unsuccessful (dense bushes on that island made viewing difficult).

On the southern islets, two chicks were first seen at one nest on 20 May (A. Baldridge), and five were there by 28 May (cf. Figures 1, 2). On 7 June, at least seven nestlings were visible in three nests (two, two, and three), but eight were repeatedly counted by 28 June All of these youngsters fledged in the period 1–3 July, making these the first successful nests in the United States (Figures 3, 4). By this time, there were not only the eight known adults in the vicinity (the three successful pairs plus the unsuccessful pair from the east side) but up to six additional adults, presumably recent arrivals from the south. Some of these new arrivals were chased by the breeding adults from the islets.

By coincidence, a male Great-tailed Grackle (*Quiscalus mexicanus*), first discovered 5 May 1999, produced young with two females at two nest sites on Roberts Lake as the Heermann's Gull breeding efforts were underway. One of the grackle nests was in the bush directly above one of the Heermann's Gull nests. These were the first known nests of Great-tailed Grackle in Monterey County—remarkably, two unrelated species were confirmed nesting for the first time in the county within just a few feet of each other. At least three grackles fledged by 28 June just as the young gulls were ready to fly, and there were now three adult male grackles hanging about All the grackles were gone by 7 July, but the juvenal–plumaged Heermann's Gulls remained in the vicinity throughout the summer (Figure 3). Although Great–tailed Grackles are staging a dramatic range expansion throughout California and elsewhere in the United States (Dinsmore and Dinsmore 1993, Jaramillo and Burke 1999), the first record of the species in Monterey County had been just five years earlier. Another nesting confirmation on Roberts Lake in the summer of 1999 was that of Canada Goose. A dozen precocial young were present by June.

A few Heermann's Gulls remained on Roberts Lake throughout the winter. By 13 March 2000, a pair was courting again on a southwestern islet, and they were apparently on a nest by 6 April. During April–May, three pairs again occupied nest sites that had been successful in the preceding year. The nest most easily visible from the public viewing area had one chick on 27 May and three chicks by 30 May. By 6 July, at least one juvenile had fledged, and at least five had fledged by 16 July. Several one-year-olds were also in the vicinity, apparently last year's offspring, as the first major influx from the south did not occur that summer until late July. Again it appeared that all three nests on the two islets were successful. (Great-tailed Grackles and Canada Geese both bred again on Roberts Lake in summer 2000.)

Heermann's Gulls remained around Roberts Lake throughout the fall and winter, sometimes roosting on the nesting islets By February 2001, adults in alternate plumage appeared to be on territory again. From 24 April into early May, three pairs appeared to be on eggs at the three now-traditional nest sites. On 11 May, a fourth

pair flew in and bathed together before briefly visiting the island in the eastern corner of the lake. Interesting interactions occurred between adults and younger Heermann's Gulls in early May. On 11 May, there were 12 immatures present either adjacent to the islets or at the nearby gull roost: eight one-year-olds and four two-year-olds. One of the two-year-olds initiated a long-call display with head tossing towards one of adults of the fourth pair, and the adult responded with a head-tossing call of its own before becoming disinterested. We presume that the four two-year-olds are among the eight known fledglings from 1999, and that the eight one-year-olds must be the fledglings from last summer. We documented only five fledglings in 2000, but our visits were rather infrequent during this second year of successful nesting; we could easily have overlooked fledging successes (we typically found different numbers of juveniles in July of each successful year, as birds moved between Roberts Lake and the adjacent Monterey Bay shore).

These May 2001 observations strongly suggest that the three successful nesting pairs in 1999 and 2000 fledged at least eight young each summer (three from two nests, and two from the remaining nest). The supposition is further supported by the state of molt of the immatures. The wing molt of the four two-year-olds was more advanced than that of the eight one-year-olds, with only the inner primaries still growing, while the one-year-old birds had missing or very short inner primaries. Both age classes had freshly-molted rectrices, and in each age class the molt pattern was synchronous. This makes sense, as the youngsters all fledged within a few days of each other in each of the two summers.

By 11 May 2001, however, difficulties were apparent out on the breeding islets. The closest pair seemed to have lost their eggs, but they were copulating again. The middle pair was milling about, while only the far nest was still being incubated. Prolonged copulation by a pair of Western Gulls was observed at the edge of the islet, but throughout the following weeks, the adult Heermann's remained aggressive towards any Western Gull that approached the nest sites. Western Gulls did not seem to be an obvious problem. By 24 May, all nests seemed abandoned.

Throughout early June, two pairs continued to roost in the vicinity of nest sites, and a bird sometimes sat on a scrape, but no eggs were observed. The most likely explanation for the abandonment

Figure 1. A just-hatched Heermann's Gull with its two sleeping parents at mid-day on 27 May 1999. This was one of three nests on two tiny man-made islets in Roberts Lake, Seaside, Monterey County in central California that summer. *Photograph by Don Roberson.*

Figure 2. One of the chicks hatched in late May 1999 is fed by its parent at the edge of the islet in June. Roberts Lake is a shallow freshwater lake; the adults foraged in adjacent Monterey Bay. *Photograph by Don Roberson.*

was recurrent encroachment by non-native Canada Geese. Up to 188 Canada Geese were counted on Roberts Lake in June, and dozens of them were now roosting on the islets, as the few tame farm geese had been doing for years. On some days, the geese were sleeping right atop the gulls' nesting sites. The adult Heermann's were tenacious in remaining on the islets but were not aggressive toward the geese. By 30 June, all Heermann's had left the islets. The first immigrants from southern populations were on Roberts Lake by 17 June (in a roost at the north end of the lake) and presumably the failed nesters joined the roost by the month's end. The best theory we can devise for the nest failures in summer 2001 was the pressure of the burgeoning goose population. (The Great-tailed Grackles, apparently unaffected by the geese, were successful in nesting at Roberts Lake again.)

Our observations on the successful nesting of Heermann's Gulls on Roberts Lake were sporadic and opportunistic, but we were impressed by the nesting synchrony displayed within this tiny colony. On Isla Rasa, where 95% of the world's population nests, the colony is characterized by high nesting density and high nesting synchrony (Velarde 1999). Beyond the publications of Urrutia and Drummond (1990) and Velarde (1999), little has been published on the details of breeding chronology. The incubation period may average 28 days (Ehrlich et al. 1988); studies on Isla Rasa indicate that flight occurs 45 days after hatching (Urrutia and Drummond 1990).

Our data were consistent with what has been published about breeding phenology. Like the prior California nests described by Howell et al. (1983), the Roberts Lake nests were simply scrapes in the earth rimmed with bits of vegetation. During the two successful years of breeding on Roberts Lake, the first chick hatched on 20 May and 27 May, respectively. These hatching dates should correspond to egg-laying in late April, an extrapolation consistent with our behavioral observations. The Roberts Lake nests appeared to have two to three eggs each, a detail also consistent with Isla Rasa (68% of large sample had 2 eggs, 18% had 3 eggs; Urrutia & Drummond 1990). During the successful years on Roberts Lake, the first fledging occurred about 1 July and 6 July, respectively. This is a period between hatching and fledging of at least 40–41 days.

The tiny three-pair colony on Roberts Lake had a nesting chronology (eggs laid in April, hatching in May, fledging by end of June) more similar to the primary colony on Isla Rasa (Urrutia and

Figure 3. A just-fledged youngster in juvenal plumage on Roberts Lake 3 July 1999. Eight young fledged in summers 1999 and 2000, representing the first successful Heermann's Gull nests in the United States. *Photograph by Don Roberson.*

Drummond 1990, Velarde 1999) than to the isolated colonies in western Baja California, which initiate breeding a month or two later (Jehl 1976). The prior California attempts have also been later, with eggs not laid until mid-May or even later (Howell et al. 1983). Noting that all prior California efforts have been unsuccessful, we wonder if the earlier initiation of breeding by the Roberts Lake pairs contributed to their success.

Finally, it is interesting that the tiny Roberts Lake population now appears to be resident and that two-year-olds have already begun practicing courtship behavior. Whether the failures of summer 2001 will bring an end this far-flung pioneering colony remains to be seen.

Acknowledgments

Diana Ingersoll at the City of Seaside Department of Public Works graciously provided information on the creation and maintenance of the islets in Roberts Lake. Alan Baldridge, Dave Haupt, and Dan Singer directly supplied us with details of their observations, and we benefited from reports by others left on the local rare bird alert maintained by the Monterey Peninsula Audubon Society.

Literature cited

Bailey, S. F. 1993. Western Gull account, in: *Atlas of the the Breeding Birds of Monterey County, California* (D. Roberson & C. Tenney, eds.). Monterey Peninsula Audubon Society, Carmel, California.

Bailey, S. F., D. S. Singer, and D. Yee. 1996. The Nesting Season: Middle Pacific Coast Region. *National Audubon Society Field Notes* 50: 992–995.

Binford, L. C. 1978. Lesser Black-backed Gull in California, with notes on field identification. *Western Birds* 9: 141–150.

Chelton, D. B., P. A. Bernard, and J. A. McGowan. 1982. Large-scale interannual physical and biological interaction in the California Current. *Journal of Marine Research* 40: 1095–1125.

Dinsmore, J. J., and S. J. Dinsmore. 1993. Range expansion of the Great-tailed Grackle in the 1900s. *Journal of the Iowa Academy of Science* 100: 54–59.

Ehrlich, P. R., D. S. Dobkin, and D. Wheye. 1988. *The Birder's Handbook.* Simon & Schuster, New York.

Grinnell, J., and A. H. Miller. 1944. *Distribution of the birds of California.* Pacific Coast Avifauna No. 27.

Howell, J., D. Laclergue, S. Paris, W. I. Boarman, A. R. DeGange, and L. C. Binford. 1983. First nests of Heermann's Gull in the United States. *Western Birds* 14: 39–46.

Jaramillo, A., and P. Burke. 1999. *New World Blackbirds: The Icterids.* Princeton University Press, Princeton, New Jersey.

Jehl, J. R., Jr. 1976. The northernmost colony of Heermann's Gull. *Western Birds* 7: 25–26.

Lidicker, W. Z., Jr., and F. C. McCollum. 1979. Canada Goose established as a breeding species in San Francisco Bay. *Western Birds* 10: 159–162.

Mellink, E. 2001. History and status of colonies of Heermann's Gull in Mexico. *Waterbirds* 24: 188–194.

Rasmusson, E. M. 1985. El Niño and variations in climate. *American Scientist* 73: 168–177.

Roberson, D. 1985. *Monterey Birds.* Monterey Peninsula Audubon Society, Carmel, California.

Roberson, D., and C. Tenney, eds. 1993. *Atlas of the Breeding Birds of Monterey County, California.* Monterey Peninsula Audubon Society, Carmel, California.

Urrutia, L. P., and H. Drummond. 1990. Brood reduction and parental infanticide in Heermann's Gull. *Auk* 107: 772–794.

Velarde, E. 1999. Breeding biology of Heermann's Gulls on Isla Rasa, Gulf of California, Mexico. *Auk* 116: 513–519.

Velarde, E., M. S. Tordesillas, L. Vieyra, and R. Esquivel. 1994. Seabirds as indicators of important fish populations in the Gulf of California. *California Cooperative Oceanic Fisheries Investigations Report* 35: 137–143.

Wallace, J. M. 1985. "Atmospheric response to equatorial sea–surface temperature anomalies," in: *El Niño north: Niño effects in the eastern subarctic Pacific Ocean* (W. S. Wooster and D L Fluharty, eds.). Washington Sea Grant Program, University of Washington, Seattle.

Yee, D. G., S. F. Bailey, and D. S. Singer. 1995. The Nesting Season: Middle Pacific Coast Region. *National Audubon Society Field Notes* 49: 975–979.

—Received

Figure 4. A one-year-old Heermann's Gull stretches its wing at Roberts Lake in May 2001 where it had fledged the previous summer. Each summer the three nests were highly synchronous, and thus young birds a year later were in very similar states of molt. Nearby two-year-olds were already engaged in courtship behavior toward adults. *Photograph by Don Roberson.*