

Recent changes in the status of wintering gull populations in Utah

The study of rarities can serve as a predictor of widespread population changes

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DURING THE LAST DECADE OR SO, popular interest in the distribution and identification of gulls has blossomed. To a large extent, this reflects a heightened awareness that particularly during the winter, large flocks of gulls may often contain rarities. In Utah, current understanding of the status and distribution of gulls is woefully outdated, an ironic finding for the only state with a gull, the California Gull (*Larus californicus*) as its state bird. The *National Geographic Society Field Guide to the Birds of North America* (first edition) failed to show the California Gull as occurring in the state, when in fact, it is the most common breeding species and a permanent resident. Similarly, the Ring-billed Gull (*Larus delawarensis*), the most abundant wintering species, was not shown as occurring in the state. The most current references on Utah bird distributions (Walters and Sorenson 1983; Behle *et al.* 1985) are closer to the mark, but still do not portray an accurate picture.

METHODS

We censused gull populations on 23 days during the 1984–1985 winter season and on 16 days during the 1985–1986 winter season. For both winters combined, the range of survey dates was October 26 through March 31. These data were combined with data from 15 daily field trip lists between 1981–1984. Observations of gulls were obtained from widespread locations in Cache, Box Elder, Weber, Davis, Salt Lake, and Utah counties, with a concentration of effort at four large sanitary landfills located near major bodies of water: Bountiful area dump on Farmington Bay in Salt Lake and Davis counties, Salt Lake City dump near the Great Salt Lake in Salt Lake County, and the Orem and Provo dumps, both near Utah Lake in Utah County.

The censuses usually began at about 1030 hours, after gulls had arrived and started feeding, and ended at about 1630 hours, when the birds departed.

Depending on the number and accessibility of the birds, observation times at a single dump lasted from one to five hours. Counts were conducted as running tallies of all species present. Although estimation procedures were usually employed, we calibrated our estimates with exact counts of a portion of each flock. Because our estimates were consistently lower than the counts, and because there was constant movement to and from the dumps, we feel that the numbers obtained were conservative. However, we believe that our methods accurately assessed the relative abundance of species and age categories.

The total number of birds present on any given day was highly variable, depending on temperature, fog, precipitation, and conditions of ice or snow. Typically, peak counts of 12,000 to 18,000 individuals occurred on clear, very cold days, following a moderate to heavy snowfall. Fog was found to be the most hampering factor in obtaining counts of large numbers of birds at the dumps.

Individuals of the "rarer" species, such as Thayer's (*Larus thayeri*), Glaucous (*L. hyperboreus*), or Glaucous-winged (*L. glaucescens*), were carefully scrutinized for an identifying mark like a deformed bill or a plumage aberration that would make them recognizable later. This procedure gave us some estimate of movement between dumps and the degree of repeat encounters with particular individuals. All identifications were made at as close a range as possible. Spotting scopes and a Questar were used, although birds could often be approached to within 15 or 20 meters.

RESULTS

During the course of the study, we identified eight species and three hybrid forms of "white-headed" *Larus* gulls. Of those, three species, Thayer's, Mew (*L. canus*), and Glaucous-winged, were photographically documented as first state records (Figs. 1 to 4). The Great Black-backed Gull (*L. marinus*), previously unrecorded in Utah, was ob-

served but not photographed. All of the hybrid forms were also previously unrecorded in the state. Of those, two, Glaucous-winged x Western and Glaucous x Herring, were photographed (Figs. 5 and 6) and one, Glaucous-winged x Herring, was not. In addition, we found unprecedented numbers of Glaucous Gulls (Figs. 7 and 8) and Herring Gulls, species previously considered rare in Utah.

Ring-billed and California gulls

Prior to our study, these two species were the only ones considered to occur in substantial numbers in Utah (Behle and Perry 1975; Haywood *et al.* 1976). They were found to be the most common species in our study as well. While overall numbers of these two species remained fairly constant, the proportions of each changed with the season (Fig. 9). The numbers of California Gulls decreased from about 70% or 80% of all gulls present in late October and early November to about five percent during midwinter. Conversely, Ring-billed

Gulls constituted 20% or 30% in late October and early November, but 85% or 90% in midwinter. As spring approached, these trends reversed.

The vast majority (95% to 98%) of birds of both species were adults. However, while there was little seasonal change in the ratio of adult to immature Ring-billed Gulls, by mid-December, immature California Gulls were virtually absent.

Herring Gull

Although we had isolated sightings of immature Herring Gulls (*L. argentatus*) as early as August, the first predictable occurrence was in late October. From November through early December, they were uncommon, with daily counts of between five to fifty individuals. From mid-December through January, their numbers increased dramatically, peaking at 500 to 750 individuals per daily count. They began to disappear rapidly beginning in mid-February, and by the beginning of March only 30 to 50 remained (Fig. 10).



Figure 1. First-winter Thayer's Gull in mixed flock of Ring-billed, California, and Herring gulls at the Salt Lake landfill, January 19, 1985. Photo/M. H. Tove.

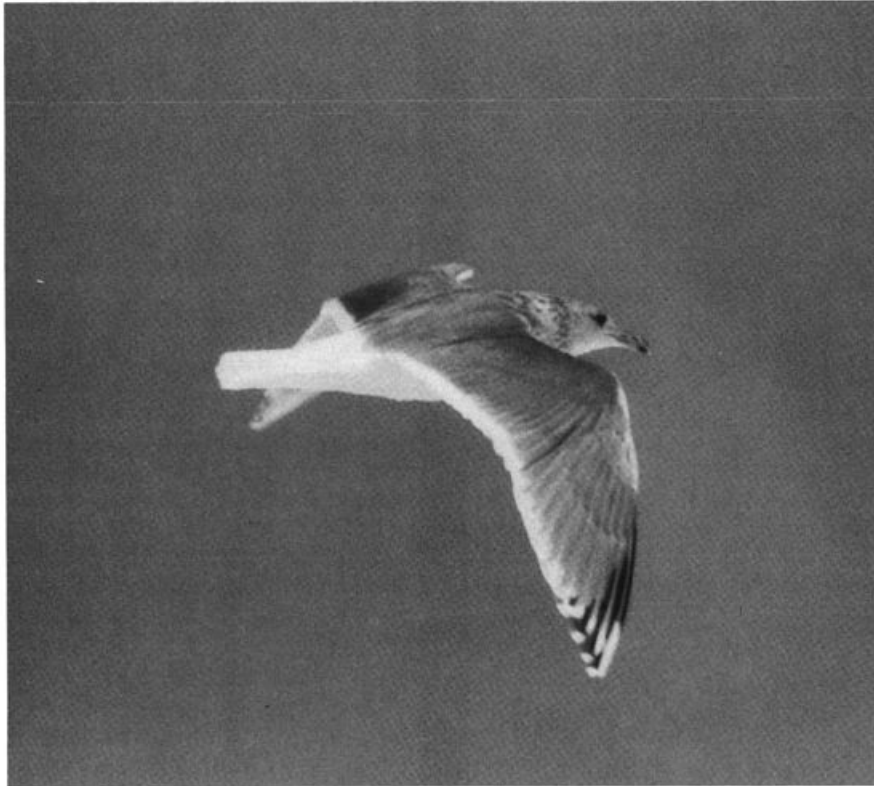


Figure 2. Adult Thayer's Gull at the Salt Lake landfill, February 4, 1985. Photo/M. H. Tove.

The ratio of adults to immatures showed seasonal changes as well. The first individuals to arrive were almost always first-winter birds. By late November, 20% or 30% were adults, and at peak occurrence, 65% to 85% were adults. By late February, most of the birds had departed. Of those individuals that lingered as late as mid-March, 30% or 40% were adults.

Thayer's Gull

This species was first recorded in Utah November 13, 1982 (Tove 1985). Since then, we have observations of at least 71 individuals (Table 1; Figs. 1 and 2). Analysis of the 1984-1985 and 1985-1986 seasons indicates that this species arrived in mid-November and quickly reached peak numbers (Table 2). The data suggest that like Herring Gulls, immatures preceded adults, but the sample size is too small to be conclusive. The number of Thayer's Gulls occurring on a given day appeared to be directly related to the total number of gulls present. For example, in late December 1985, persistent, heavy fog drove many gulls away. This is well illustrated by comparison of the monthly distribution of Thayer's Gull for the two principal study years (Table 3).

1985. All but one of these were from the Salt Lake dump. In addition, we are aware of an adult seen by Joe Leigh near the Salt Lake dump in early winter 1985-1986.

Glaucous-winged Gull

We have 15 sightings of nine individuals, as follows: five first-winter birds from November 20, 1984 (Fischer *in press*; Fig. 4) through March 31, 1985, three first-winter birds and one second-winter bird from November 20, 1985, through February 1, 1986. In addition, an unidentified "white-winged" gull seen briefly on November 23, 1984 was believed to be this species. Although this species was not observed away from one of the four major dumps, the birds showed a great propensity to move about from dump to dump and were unpredictable as to when or where a particular individual would occur.

Glaucous Gull

We have records of nine individuals of this species from January 1984 through February 1986 and are aware of two other individuals reported during this time. Our sightings include one first-winter bird January and February 1984, two first-winter (Fig. 5), one second-winter, and two adult birds (Fig. 6) January 3-March 13, 1985, and single first-winter, second-winter and third-

Mew Gull

We have eight observations of six or seven individuals as follows: One first-winter bird, February 9, 1984 (Tove 1985; Fig. 3); one adult on December 19, 1984; two first-winter individuals January 26-February 4, 1985; two or three first-winter birds December 7-18,

Table 1. Breakdown of Thayer's Gulls by age categories for the winter seasons from 1982-1986. The relatively small numbers from 1982-1984 are likely an artifact of coverage rather than genuine trends.

	1982-1983	1983-1984	1984-1985	1985-1986	Total
First-winter	2	7	21	21	51
Second-winter		1	1	1	3
Third-winter			2		2
Adult			9	6	15
Total	2	8	33	28	71

Table 2. Maximum monthly counts of Thayer's Gulls for the winter seasons from 1982-1986. Data within a single year include some repeat individuals between months.

	1982-1983	1983-1984	1984-1985	1985-1986
OCTOBER			1	
NOVEMBER	2		13	11
DECEMBER		1	7	16
JANUARY		2	16	2
FEBRUARY		4	17	1
MARCH		3	7	1



Figure 3. First-winter Mew Gull at the Salt Lake landfill, February 9, 1984 (first state record). Photo/M. H. Tove.

winter birds November 23, 1985–February 1, 1986. All sightings of this species were made at either the Salt Lake or Bountiful dumps. Like the Glaucous-winged, Glaucous Gulls moved around unpredictably, and might be expected at additional sites in the future.

Great Black-backed Gull

There were two sightings of apparently the same first-winter individual (Kingery 1986). The first was by the authors at the Salt Lake dump on November 20, 1985. The second was several miles west of the dump along the south shore of the Great Salt Lake on November 27, 1985. Because of the lack of photographic documentation, we consider the occurrence of this species hypothetical in Utah.

The only previous Utah sighting was of a large, unidentified “black-backed” gull at Farmington Bay during the winter of 1978 (Kingery 1978). This individual was probably either a Great Black-backed Gull or a Western Gull (*L. occidentalis*). The latter is unrecorded from Utah, but there is evidence that suggests it could occur. In November 1984, a nearly adult Western Gull was discovered by Tove and Chuck Trost in southeastern Idaho, only 90 kilometers north of the Utah border (Tove and Trost, *in press*). Trost reported (Rogers 1986) that this bird returned the following year and was present during most of the fall.

Hybrid Gulls

The phenomenon of gull hybridization, particularly involving the larger

West Coast species, has been well documented (Williamson and Peyton 1963; Hoffman *et al.* 1978; Ingolfsson 1970; Scott 1971; Patten and Weisbrod 1974; Spear 1987). All of the hybrids we identified exhibited plumage characteristics that were intermediate between the presumed parental species. To a large degree, hybrid identification was facilitated by the relative abundance of a particular form and the depth of coverage in field guides. Thus, a hybrid Glaucous-winged x Western was more easily recognized than a hybrid Glaucous x Herring, which in turn was easier than a hybrid Glaucous-winged x Herring. In spite of the problems associated with tricky identifications such as these, we feel that the hybrids we observed were identifiable with sufficient certainty to make discussion of them worthwhile.

Table 3. Comparison of number of field parties for four Christmas Bird Counts in Colorado and Utah from 1976–1985.

	COLORADO			UTAH		
	Boulder	Denver	average	Provo	Salt Lake City	average
1985	32	27	30	11	16	14
1984	34	29	32	14	18	16
1983	31	29	30	10	22	16
1982	*	31	31	10	25	18
1981	26	33	30	10	14	12
1980	29	26	28	11	14	13
1979	28	31	30	11	13	12
1978	32	36	34	9	18	14
1977	32	37	35	9	14	12
1976	38	41	40	13	9	11

* Count not published



Figure 4. First-winter Glaucous-winged Gull at the Provo landfill, February 4, 1985. Photo/M. H. Tove.

Hybrid Glaucous-winged x Western

We have seven sightings of at least four individuals of this common West Coast hybrid. They include two first-winter birds (Fig. 7) present from January 26–March 13, 1985, an adult on December 18, 1985, and a second-winter bird on February 1, 1986. All four had the heavy bill and robust body of a Western Gull or a Glaucous-winged Gull, but had plumage characteristics intermediate between those species.

Hybrid Glaucous x Herring

We have six sightings of two first-winter individuals. The first was originally seen in Logan October 29–31, 1984 (Fig. 8), and overwintered (December 14–February 16) at the Salt Lake dump. Another was seen briefly on December 18, 1985, at the Bountiful dump. Both individuals had the size and shape of a Glaucous Gull and a pink bill with a black tip. However, the plumage more closely resembled that of a

pale Thayer's Gull, with primaries and tail feathers darker brown than the remainder of the body. The first individual was very similar to the juvenile shown by Spear (1987). The second individual was somewhat paler.

Hybrid Glaucous-winged x Herring

Between December 7, 1985–March 25, 1986, we repeatedly observed a first-winter gull at the Bountiful dump that we believed was this form. In size and "jizz," the bird resembled a large Thayer's Gull, but the plumage was somewhat more typical of a pale Glaucous-winged x Western hybrid. In March, some adult-type gray mantle feathers were evident. By direct comparison, they were similar in color to the mantle of a Herring Gull, not as dark as in a hybrid Glaucous-winged x Western.

DISCUSSION

The data indicate a distinctly different status for "white-headed" gulls

wintering in northern Utah than was previously known. Based on our surveys of these gulls, we consider the winter status of the Ring-billed to be abundant, of the California and Herring common, of Thayer's uncommon, of the Glaucous-winged and Glaucous uncommon to rare, of the Mew rare, and of the Great Black-backed accidental and hypothetical. We also believe that the hybrids are rare but regular.

The question now turns to the cause of the apparently significant change in numbers of gulls in Utah. A ten-year survey of Christmas Bird Counts from Provo and Salt Lake City, Utah, and from Boulder and Denver, Colorado, reveals two superimposed effects (Fig. 11). The first effect was a steady increase in gull numbers for the two states (excepting the 1977 gull invasion). The second was a substantially greater increase in Utah than in Colorado beginning in 1982. The winter of 1982–1983 was the first season of abnormally high precipitation and flooding, which continued to plague Utah throughout all years of the study. The overall effect was to double the surface area of the Great



Figure 5. First-winter Glaucous Gull at the Salt Lake landfill, February 4, 1985. Photo/M. H. Tove.

Salt Lake and substantially increase the size of Utah Lake. These changes produced a greatly increased shoreline, particularly associated with shallow flats, decreased the salinity of the Great Salt Lake, and brought water closer to the dumps.

Conover (1983) correlated dramatic increases in numbers of California Gulls and Ring-billed Gulls in the western United States including Utah, with urban growth. In particular, he felt that "increased food supplies resulting from edible human garbage" and "the creation of new nesting habitat formed by large reservoirs" (Conover 1983:373) were major contributive factors.

Another possible factor is an increase in the skill of observers and of search time. While there is no doubt that there was a sampling effect, we caution against relying heavily on this explanation. In the first place, coverage on Christmas Bird Counts did not keep pace with the growing numbers of gulls reported. In fact, there was no significant increase in the number of field



Figure 6. Adult Glaucous Gull at the Salt Lake landfill, February 4, 1985. Photo/M. H. Tove.



Figure 7. First-winter Glaucous-winged x Western hybrid at the Salt Lake landfill, February 1985. Photo/D. L. Fischer.

parties between 1976–1985 (Table 3), but approximately a 900% increase in the average number of gulls per count. Moreover, some species (*e.g.*, Glaucous) were reported regularly in regional reports in *American Birds* during the previous 10 years. Also, a number of ornithologists were regularly collecting as recently as the 1970s. Thus, coverage has increased only slightly relative to the increased number of gulls.

On the other hand there is a question of the quality of observation. With the appearance of sophisticated new identification guides (Grant 1982) and various identification articles, there have been substantial increases in our knowledge of gull identification over the past 10 years. In spite of this, we found that local birders had a strong reluctance to identify rare or immature gulls until they had accompanied us into the field several times. We believe that this had the effect of suddenly increasing aware-

ness of the rarer species. However, there is evidence that the occurrence of some of the rarer species may not entirely relate to observer bias. For example, Conover and Thompson (1984) documented several small colonies of Glaucous-winged Gulls breeding as much as 412 kilometers inland in Oregon and Washington. They felt that this recent range expansion of a typically coastal species was indicative of a larger trend of gull population expansions.

The increase in numbers and species of gulls wintering in northern Utah reflects populational trends rather than increased observer awareness. The main attraction for gulls appears to be large bodies of water near extensive garbage dumps. Without exception, the rarer species were tightly associated with water and some food resource, and did not occur in other situations (*e.g.*, with flocks in agricultural fields). More specifically, the increased gull populations

in Utah likely resulted from more widespread increases in gull populations, from an increase in the size and activity of garbage dumps associated with an increased human population, and finally from a local effect of the extreme wet cycle prevailing in Utah since 1982. Our final comment is that the data are not yet extensive enough to predict if the observed trend represents a transient or long-term phenomenon. For this reason, we urge observers to keep careful records and report their findings consistently over the next several years.

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Figure 8. First-winter *Glauca* x *Herring* hybrid near Logan, Utah, October 31, 1984. Photo/M. H. Tove.

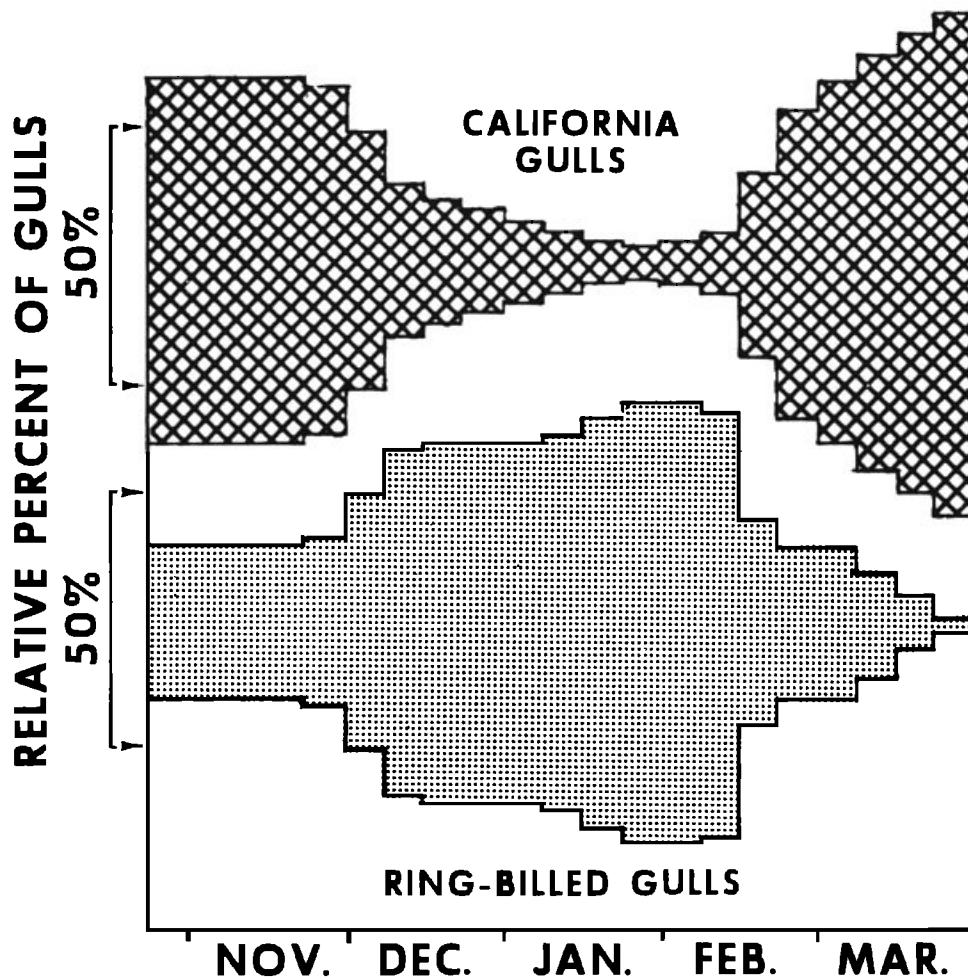


Figure 9. Percent occurrence of California and Ring-billed gulls by week for the 1984–1986 survey. The histogram bars do not add up to 100% for the weeks when Herring Gulls constituted one or more percent of the gulls present.

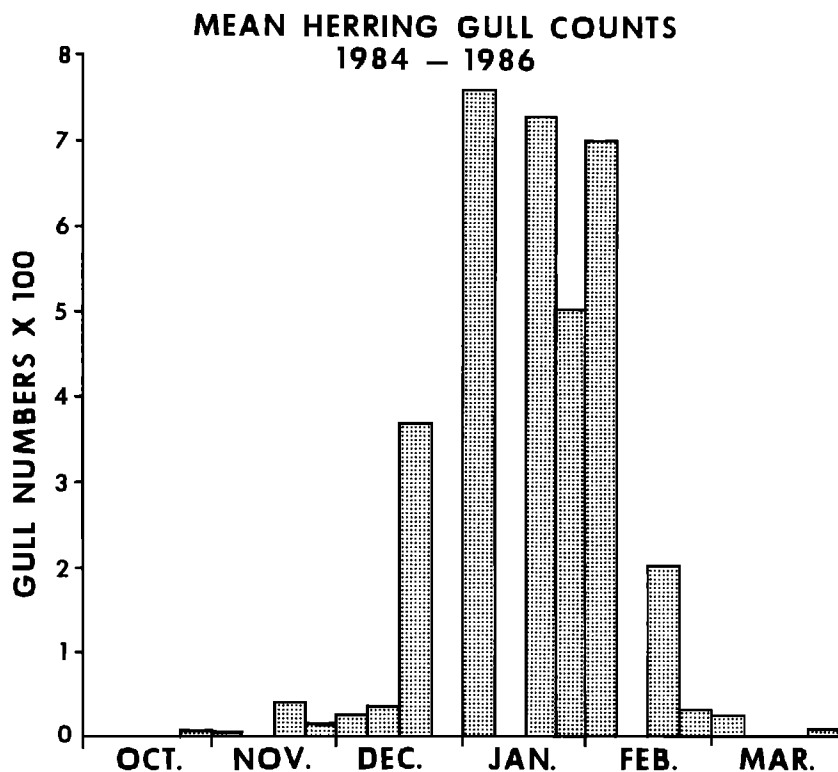


Figure 10. Distribution of Herring Gull numbers by week.

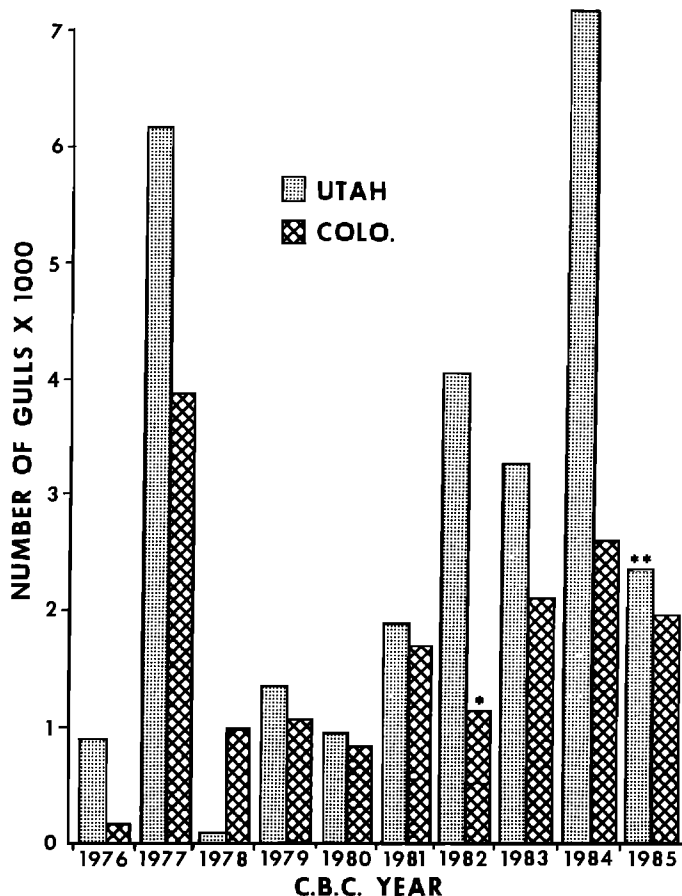


Figure 11. Total numbers of gulls counted on two Utah Christmas Bird Counts (Provo and Salt Lake) and two Colorado Christmas Bird Counts (Boulder and Denver). *Boulder count not published. **Over 8000 gulls were present during the count period week but dense fog on count day resulted in a significant underestimate of the birds present.

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