

A new species of gull (*Laridae: Larus*) from an archaeological site on Huahine, Society Islands

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Abstract.—*Larus utunui* is described from 12 bones (10 different skeletal elements from two individuals) excavated at the Fa'ahia archeological site Huahine, Society Islands. Resident species of *Larus* no longer occur in Polynesia, the nearest populations being those of *L. novaehollandiae* in New Caledonia (4200 km W of Huahine) and of *L. novaehollandiae*, *L. bulleri*, and *L. dominicanus* in New Zealand (3800 km SW of Huahine). Osteological similarities, especially in post-cranial elements, suggest that *L. novaehollandiae* may be the nearest living relative of *L. utunui*.

Although most species of gulls (Charadriiformes: Laridae: Larinae) live along coastlines and occasionally wander far out to sea, they tend to be continental in their choice of nesting sites (Haney & Lee 1994). For example, no species of gulls breed today in tropical Polynesia, where most records even of non-breeding gulls are from the Hawaiian Islands (19–28°N) rather than from the many island groups between the equator and 27°S (Bryan 1964, Pratt et al. 1987:170–177; see Fig. 1 herein). Gulls do not breed on oceanic islands in the Pacific except in New Zealand (temperate), New Caledonia (Melanesia), and the Galápagos Islands (Neotropical, relatively near South America). Speculative reasons for the general absence of resident gulls in Oceania are inadequate food supplies and their relatively inefficient salt glands (Frings 1965a, 1965b), although neither of these ideas has been tested with experiments or detailed observations.

Thus it was a surprise to find 12 gull bones among the 300+ bird bones from the Fa'ahia archaeological site on Huahine, Society Islands (Fig. 1). The cultural context, stratigraphy, and chronology of the Fa'ahia site have been described by Sinoto and McCoy (1975), Bellwood (1979), Emory

(1979), Sinoto (1979, 1983), Pigeot (1985, 1986), and Kirch (1986). The radiocarbon age of the site ranges from ca. 1250 to 750 years before present. The cultural deposits at Fa'ahia lie below the modern water table at the edge of a coastal lagoon, resulting in exceptionally fine preservation of organic materials such as wood and bone.

The bird bones from Fa'ahia were reported briefly by Steadman (1989a, 1995, 1997) and in detail by Steadman & Pahlavan (1992). These bones represent 15 species of seabirds (petrels, shearwaters, tropicbirds, boobies, frigatebirds, gulls, and terns), three species of migratory shorebirds, and 15 species of landbirds (herons, rails, pigeons, parrots, kingfishers, and passerines). Twelve of the 15 species of seabirds no longer reside on Huahine, although the gull to be described is the only species-level extinction. Among the 15 species of landbirds, six are extinct species and six others are extant but no longer occur on Huahine. The extinct species already described from Huahine are two columbids (*Gallicolumba nui*, *Macropygia arevarevauupa*; Steadman 1992), two parrots (*Vini vidivici*, *V. sinotoi*; Steadman & Zarriello 1987), and a starling (*Aplonis diluvialis*; Steadman 1989b). The loss of birdlife on

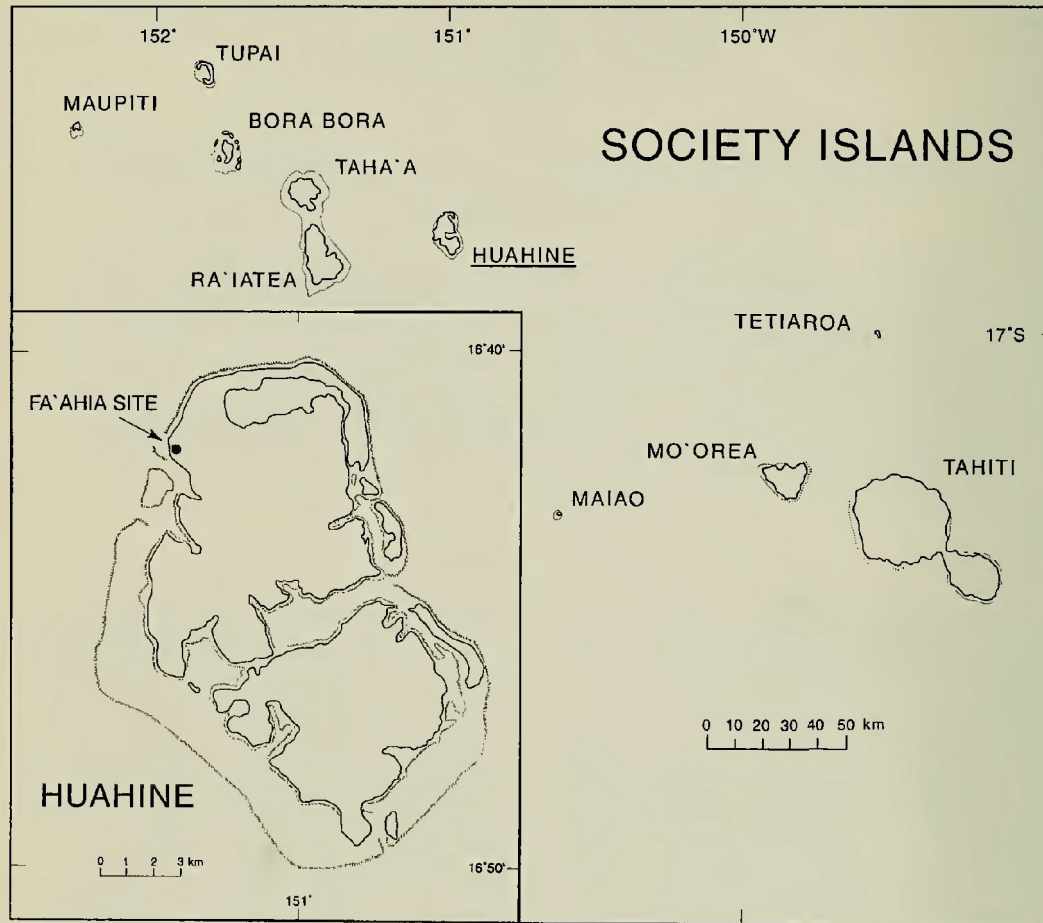


Fig. 1. The Society Islands, showing the location of the Fa'ahia archaeological site on Huahine.

Huahine, as elsewhere in Oceania, was and continues to be due to predation from non-native vertebrates and humans, habitat loss, and disease (Diamond 1985, Steadman 1995).

Materials and Methods

I examined one or more skeletons of each species of Larinae in the National Museum of Natural History, Smithsonian Institution (USNM), as follows: *Gabianus scoresbii*, *Pagophila eburnea*, *Rhodostethia rosea*, *Larus (Xema/Creagrus) furcatus*, *L. (X.) sabinii*, *Rissa tridactyla*, *Larus fuliginosus*, *L. heermanni*, *L. hemprichii*, *L. crassirostris*, *L. audouinii*, *L. delawarensis*, *L. canus*, *L.*

californicus, *L. thayeri*, *L. glaucooides*, *L. fuscus*, *L. schistasagus*, *L. marinus*, *L. glaucescens*, *L. dominicanus*, *L. atricilla*, *L. leucophthalmus*, *L. cirrocephalus*, *L. pipixcan*, *L. ichthyaetus*, *L. novaehollandiae*, *L. hartlaubii*, *L. melanocephalus*, *L. bulleri*, *L. maculipennis*, *L. ridibundus*, *L. brunneicephalus*, *L. genei*, and *L. minutus*. These specimens were supplemented by skeletons of *Larus delawarensis*, *L. argentatus*, *L. occidentalis*, *L. hyperboreus*, *L. philadelphia*, *L. atricilla*, *L. novaehollandiae*, and *L. ridibundus* from the British Museum (Natural History) (BMNH), New York State Museum (NYSM), and Florida Museum of Natural History (UF). The archaeological specimens are from collections of the Depart-

ment Archeologie, Centre Polynésien des Sciences Humaines, Tahiti (DAPT) and the Vertebrate Zoology Department, Bernice P. Bishop Museum (BPBM). Much of the osteological terminology follows Baumel et al. (1993). Measurements were taken with digital calipers with 0.01 mm increments, rounded to the nearest 0.1 mm.

Results

The prehistoric bones are referred to the Larinae rather than the Sterninae or Stercorariinae because of these characters: cranium—wide interorbital region, salt gland depression wide and shallow, well developed os mesethmoidale; rostrum—ventral surface of os premaxillare more decurved, os premaxillare wide; sternum—carina sterni deep, spina externa wide, incisura intercostalis deep; coracoid—sternal margin of facies articularis clavicularis less straight; humerus—fossa musculo brachialis deep, condylus dorsalis large; femur—crista tibi-fibularis large, condylus medialis deep; tibiotarsus—long overall, crista cnemialis lateralis more pointed, facies articularis lateralis protrudes more distinctly from shaft, distal margin of incisura intercondylaris shallow, condylus medialis shallow.

The bones are referred to the genus *Larus* rather than to other genera of Larinae (*Gabianus*, *Pagophila*, *Rhodostethia*, *Xema* [including *Creagrus*], *Rissa*; see Materials and Methods) because of the combination of shared characters outlined in Table 1. I should note that most of these genera are variously subsumed within *Larus* by certain authors.

Larus utunui, new species

Holotype.—Complete cranium and associated rostrum, DAPT 1 (Figs. 2, 3). Fa'ahia archaeological site, Huahine, Society Islands. Square Q42, Layer V, field no. AL356.

Diagnosis.—A medium-sized species of *Larus* in the species group of *L. novaehollandiae*, *L. atricilla*, *L. cirrocephalus*, *L.*

Table 1.—Characters in which the prehistoric larine bones from Huahine agree with modern specimens of *Larus* rather than those of other larine genera.

	<i>Larus</i>	<i>Gabianus</i>	<i>Pagophila</i>	<i>Rhodostethia</i>	<i>Xema</i>	<i>Creagrus</i>	<i>Rissa</i>
SKULL							
Ectethmoid	flat	bulbous	flat	flat	flat	bulbous	flat
Sternum	relatively narrow	broad	broad	broad	intermediate	intermediate	narrow
Coracoid	concave	concave	flat	flat	flat	concave	flat
Humero-ventral surface of shaft	narrow, deep	broad, deep	broad, shallow	broad, shallow	broad, deep	broad, deep	narrow, deep
Sulcus musculo supracoracoidei	narrow	stout	stout	intermediate	intermediate	narrow	intermediate
Humerus							
Shaft							

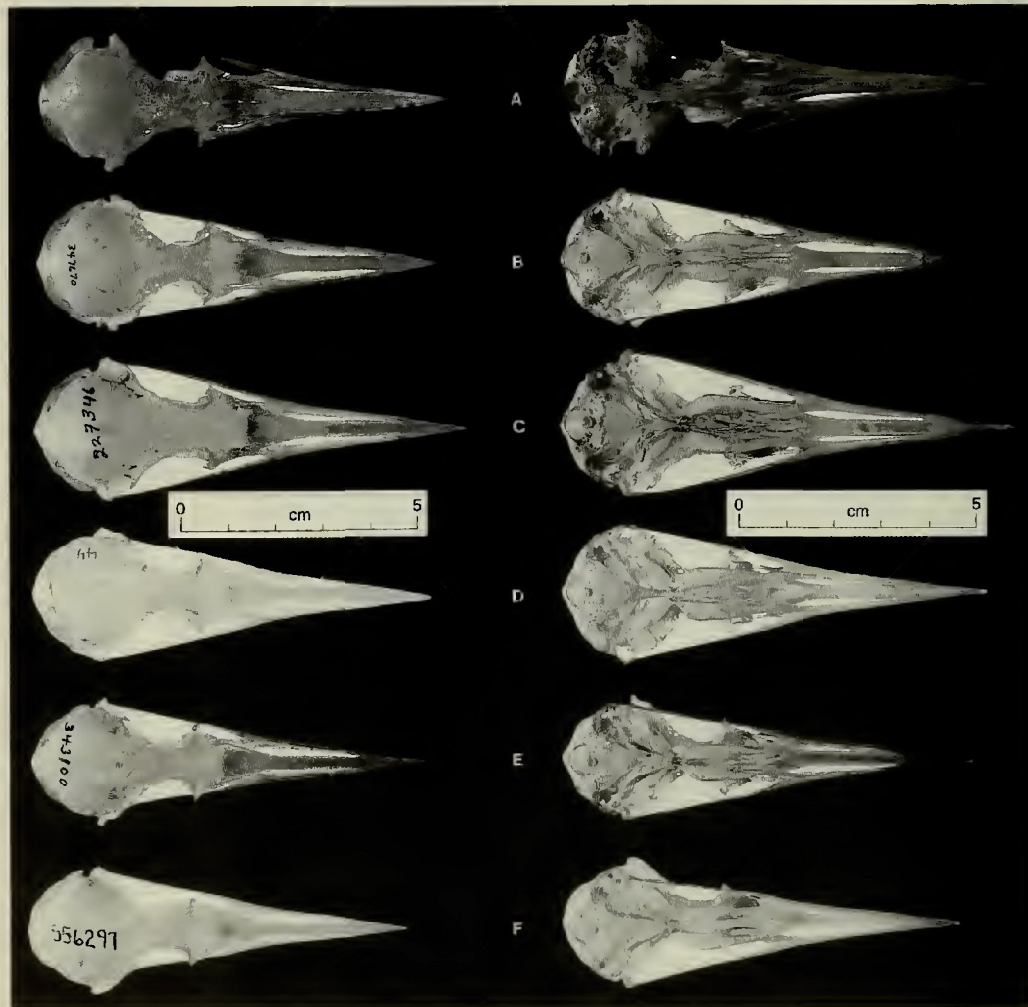


Fig. 2. The skull of *Larus* in dorsal (left) and ventral (right) aspects. A, *L. utuui*, DAPT 1, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

maculipennis, and *L. ridibundus*, differing from these species in the following unique combination of characters (see Tables 2-9): os premaxillare very long; medial bar of os nasale stout; interorbital region wide; os prefrontale bulbous; foramen pneumaticum of sternum non-pneumatic; ventral side of facies articularis clavicularis of coracoid nearly circular in medial aspect; large tubercle on medial margin of shaft of coracoid present; furcula stout; crista pectoralis of humerus rounded in dorsal aspect; di-

agonal orientation of crista pectoralis with cranial surface of humeral shaft; crista tibiofibulare of femur rounded in lateral aspect; condylus medialis and condylus lateralis of tibiotarsus large.

Paratypes.—All from the Fa'ahia archaeological site, Huahine, Society Islands. Quadrate, DAPT 106; mandible, BPBM 166046; 3rd thoracic vertebra, DAPT 107; sternum, DAPT 3 (Fig. 4); furcula, DAPT 42; coracoid, DAPT 23 (Fig. 5); three humeri, DAPT 2, 31, 40 (Fig. 6); femur,



Fig. 3. The skull of *Larus* in lateral aspect. A, *L. utuui*, DAPT 1, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

Table 2.—Osteological characters of selected species of *Larus*.

	<i>atlantici</i>	<i>novae-hollandiae</i>	<i>cyrocephalus</i>	<i>atricilla</i>	<i>maculipennis</i>	<i>ridibundus</i>
SKULL						
Os premaxillare	very long	short	long	long	long	short
Medial bar of os nasale	stout	thin	intermediate	thin	thin	thin
Intraorbital region	wide	narrow	wide	narrow	narrow	narrow
Os prefrontale	bulbous	thin	bulbous	thin	thin	thin
STERNUM						
Foramen pneumaticum	non-pneumatic	pneumatic	pneumatic	pneumatic	pneumatic	pneumatic
CORACOID						
Ventral side of facies articularis clavicularis, in medial aspect	nearly circular	circular, small	oblong	oblong	circular, small	nearly circular
Large tubercle on medial margin of shaft	present	absent	absent	absent	absent	absent
FURCULA						
Stoutness	stout	thin	intermediate	thin	thin	thin
HUMERUS						
Crista pectoralis, in dorsal aspect	rounded	sub-rounded	nearly pointed	nearly pointed	nearly pointed	nearly pointed
Orientation of crista pectoralis with cranial surface of shaft	diagonal	intermediate	nearly pointed	nearly perpendicular	nearly perpendicular	nearly perpendicular
FEMUR						
Crista tibiofibulare, in lateral aspect	rounded	intermediate	intermediate	intermediate	intermediate	pointed
TIBIOTARSUS						
Relative size of condylus medialis and condylus lateralis	large	large	large	small	small	small

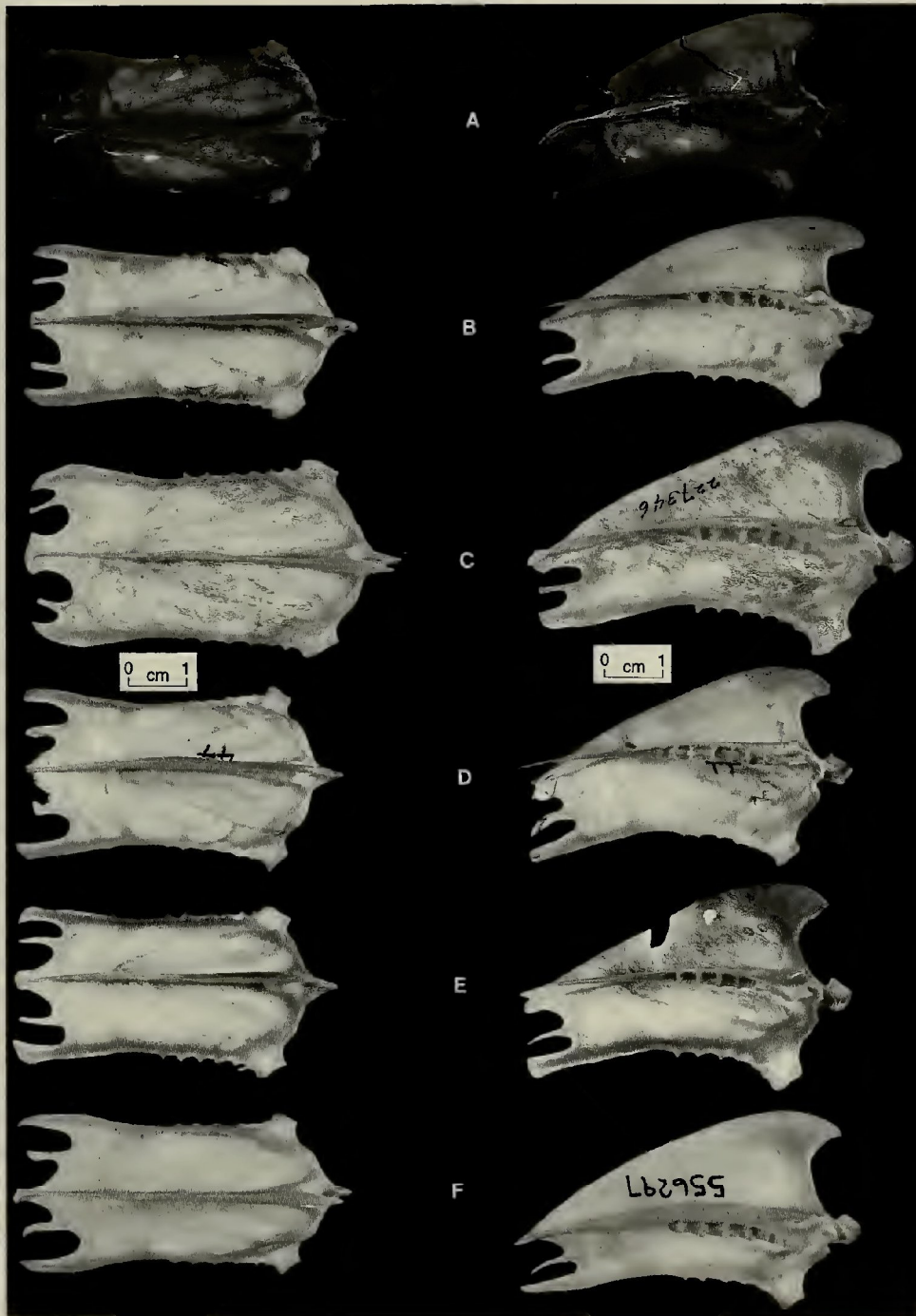


Fig. 4. The sternum of *Larus* in ventral (left) and oblique lateral (right) aspects. A, *L. utunui*, DAPT 3, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

Table 3.—Measurements (in mm) of the skull of selected species of *Larus*, with mean, range, and sample size. U = sex unknown.

	Total length	Minimum length of rostrum	Minimum width of braincase	Minimum width of frontals	Width of os nasale
<i>L. utunui</i>	87.3	49.9	22.2	9.4	4.1
Huahine (DAPT 1)	1	1	1	1	1
<i>L. novaehollandiae</i>	82.7	42.6	22.5	7.9	2.9
Australia, New Zealand, captive (7 ♂, 3 ♀, 1 U)	77.7–86.3	39.4–45.0	21.8–23.1	6.9–8.9	2.5–3.2
	11	11	11	11	11
<i>L. atricilla</i>	84.4	45.6	22.6	7.4	3.0
Virginia, North Carolina, Florida (4 ♂, 5 ♀)	91.9–89.6	43.1–48.7	22.1–23.3	6.5–8.5	2.9–3.2
	9	9	9	9	9
<i>L. cirrocephalus</i>	92.3	49.3	22.8	9.0	3.4
Argentina (1 ♂)	1	1	1	1	1
<i>L. cirrocephalus</i>	80.9	43.2	21.7	7.2	3.1
Bechuanaland (1 ♀, 1 U)	79.4–82.4	42.5–44.0	21.6–21.8	6.7–7.6	3.1
	2	2	2	2	2
<i>L. maculipennis</i>	84.0	44.5	21.9	7.3	2.8
Uruguay, Argentina, Chile (2 ♂, 1 ♀, 2 U)	79.3–89.1	41.7–47.6	21.2–22.2	6.0–8.0	2.5–3.1
	5	5	5	5	5
<i>L. ridibundus</i>	77.0	39.9	21.5	6.6	2.4
Holland (4 ♂, 4 ♀)	73.0–81.3	37.6–42.4	20.6–22.4	5.9–7.3	2.2–2.8
	8	8	8	8	8

Table 4.—Measurements (in mm) of the sternum of selected species of *Larus*, with mean, range, and sample size. U = sex unknown.

	Total length	Maximum width	Minimum width
<i>L. utunui</i>	51.3	27.1	21.5
Huahine (DAPT3)	1	1	1
<i>L. novaehollandiae</i>	54.3	29.9	23.4
Australia, New Zealand, captive (7 ♂, 3 ♀, 2 U)	53.1–56.8	28.5–32.3	21.6–25.3
	12	12	12
<i>L. atricilla</i>	53.2	30.2	24.2
Virginia, North Carolina, Florida (4 ♂, 5 ♀)	51.1–55.3	28.9–32.2	23.2–25.2
	9	9	9
<i>L. cirrocephalus</i>	61.1	33.3	26.8
Argentina (1 ♂, 1 ♀)	59.9–62.3	32.9–33.7	26.7–26.9
	2	2	2
<i>L. cirrocephalus</i>	52.8	30.0	24.1
Bechuanaland (1 ♀, 1 U)	52.6–53.0	29.8–30.2	24.1
	2	2	2
<i>L. maculipennis</i>	54.7	29.4	24.0
Uruguay, Argentina, Chile (2 ♂, 1 ♀, 1 U)	51.9–57.5	27.2–31.3	22.6–25.7
	4	4	4
<i>L. ridibundus</i>	53.3	26.5	22.68
Holland (4 ♂, 4 ♀)	50.9–55.8	25.9–27.5	21.6–23.3
	8	8	8

Table 5. Measurements (in mm) of the coracoid of selected species of *Larus*, with mean, range, and sample size. U = sex unknown.

	Total length	Minimum width of shaft	Length of facies articularis humeralis	Width of sternal end
<i>L. utunui</i> Huahine (DAPT 23)	30.5	3.2	6.4	10.6
	1	1	1	1
<i>L. novaehollandiae</i>	32.3	3.2	6.8	10.8
Australia, New Zealand, captive (7 ♂, 3 ♀, 1 U)	31.0–33.2	3.0–3.4	6.3–7.1	10.3–11.4
	11	11	11	10
<i>L. atricilla</i>	33.0	3.3	6.6	10.8
Virginia, North Carolina, Florida (4 ♂, 5 ♀)	32.0–34.7	3.0–3.7	6.4–7.3	10.2–11.5
	9	9	9	9
<i>L. cirrocephalus</i>	34.0	3.8	7.0	12.3
Argentina (1 ♂, 1 ♀)	33.0–35.1	3.7–3.8	6.3–7.8	12.3
	2	2	2	2
<i>L. cirrocephalus</i>	30.5	3.4	6.8	10.8
Bechuanaland (1 ♀, 1 U)	30.2–30.8	3.2–3.5	6.6–6.9	10.7–11.0
	2	2	2	2
<i>L. maculipennis</i>	31.6	3.2	6.2	10.5
Uruguay, Argentina, Chile (1 ♂, 1 ♀, 2 U)	29.0–33.4	3.1–3.3	5.7–6.3	9.8–10.9
	4	4	4	4
<i>L. ridibundus</i>	28.2	3.2	6.0	9.9
Holland (4 ♂, 4 ♀)	26.6–30.2	2.8–3.5	5.7–6.5	9.2–10.5
	8	8	8	8

Table 6.—Measurements (in mm) of the humerus of selected species of *Larus*, with mean range, and sample size. U = sex unknown.

	Total length	Proximal width	Width of midshaft	Depth of midshaft	Distal width
<i>L. utunui</i>	79.2	14.6	4.8	4.0	11.0
Huahine (DAPT 2, 31, 40)	1	14.5–14.6	1	1	1
		2			
<i>L. novaehollandiae</i>	82.3	14.4	4.6	3.7	11.0
Australia, New Zealand, captive (7 ♂, 3 ♀, 1 U)	79.1–85.6	13.8–15.2	4.3–5.0	3.5–3.9	10.5–11.6
	11	11	11	11	11
<i>L. atricilla</i>	88.3	14.7	4.6	3.8	11.2
Virginia, North Carolina, Florida (4 ♂, 5 ♀)	85.5–92.4	14.2–15.3	4.4–4.9	3.7–4.0	10.7–11.5
	9	9	9	9	9
<i>L. cirrocephalus</i>	92.0	16.4	5.1	4.4	12.3
Argentina (1 ♂, 1 ♀)	1	16.1–16.7	1	1	1
		2			
<i>L. cirrocephalus</i>	83.4	14.4	4.7	3.8	11.2
Bechuanaland (1 ♀, 1 U)	82.7–84.2	14.2–14.5	4.6–4.8	3.8–3.9	11.0–11.3
	2	2	2	2	2
<i>L. maculipennis</i>	81.1	14.4	4.6	3.7	10.9
Uruguay, Argentina, Chile (2 ♂, 1 ♀, 2 U)	77.2–84.0	13.5–15.3	4.2–4.8	3.4–3.8	10.3–11.4
	4	4	4	4	4
<i>L. ridibundus</i>	76.6	13.4	4.4	3.7	10.4
Holland (4 ♂, 4 ♀)	72.9–80.0	12.7–14.4	4.1–5.0	3.4–4.3	9.9–11.0
	8	8	8	8	8

Table 7.—Measurements (in mm) of the femur of selected species of *Larus*, with mean, range, and sample size. U = sex unknown.

	Total length	Depth of head	Width of midshaft	Depth of midshaft	Distal width
<i>L. utunui</i>	40.4	3.98	3.2	3.2	8.2
Huahine (DAPT 28)	1	1	1	1	1
<i>L. novaehollandiae</i>	40.9	3.6	3.2	3.2	8.1
Australia, New Zealand,	39.1–42.5	3.4–3.8	3.0–3.5	3.1–3.4	7.7–8.6
captive (7 ♂, 3 ♀, 1 U)	11	11	11	11	11
<i>L. atricilla</i>	38.8	3.4	3.0	3.2	7.1
Virginia, North Carolina,	37.7–40.6	3.1–3.6	2.9–3.2	3.0–3.3	6.8–7.6
Florida (4 ♂, 5 ♀)	9	9	9	9	9
<i>L. cirrocephalus</i>	41.4	3.9	3.6	3.5	8.4
Argentina (1 ♂, 1 ♀)	39.7–43.2	3.8–4.0	3.5–3.6	3.5	8.1–8.6
	2	2	2	2	2
<i>L. cirrocephalus</i>	39.6	3.6	3.2	3.0	7.6
Bechuanaland (1 ♀, 1 U)	39.3–39.9	3.6–3.7	3.2	3.0	7.5–7.8
	2	2	2	2	2
<i>L. maculipennis</i>	38.8	3.4	3.0	3.1	7.4
Uruguay, Argentina, Chile	37.6–40.8	3.3–3.5	2.8–3.3	3.0–3.1	7.2–7.8
(2 ♂, 1 ♀, 1 U)	4	4	4	4	4
<i>L. ridibundus</i>	35.4	3.2	2.9	2.9	6.8
Holland (4 ♂, 4 ♀)	34.0–38.0	3.0–3.4	2.6–3.2	2.7–3.2	6.5–7.2
	8	8	8	8	8

Table 8.—Measurements (in mm) of the tibiotarsus of selected species of *Larus*, with mean, range, and sample size. U = sex unknown.

	Total length	Proximal width	Length of crista fibularis	Width of midshaft	Depth of midshaft	Distal width
<i>L. utunui</i>	79.5	7.0	11.3	3.5	3.3	7.1
Huahine (DAPT 30)	1	1	1	1	1	1
<i>L. novaehollandiae</i>	83.0	6.6	10.7	3.4	3.4	6.8
Australia, New Zealand,	79.5–87.0	6.1–7.3	8.9–13.2	3.1–3.8	3.2–3.7	6.3–7.3
captive (7 ♂, 3 ♀, 1 U)	11	11	11	11	11	11
<i>L. atricilla</i>	77.6	5.5	9.3	2.7	2.9	6.2
Virginia, North Carolina,	75.6–80.6	5.2–6.1	7.6–11.3	2.5–3.0	2.8–3.0	5.6–6.5
Florida (4 ♂, 5 ♀)	9	9	9	9	9	9
<i>L. cirrocephalus</i>	87.7	6.9	9.7	3.6	3.2	7.0
Argentina (1 ♂)	1	1	1	1	1	1
<i>L. cirrocephalus</i>	80.0	6.3	9.2	3.3	3.0	6.4
Bechuanaland (1 ♀, 1 U)	79.5–80.6	6.0–6.6	8.9–9.5	3.2–3.4	3.0–3.	6.4–6.5
	2	2	2	2	2	2
<i>L. maculipennis</i>	80.2	6.0	9.4	3.2	3.0	6.4
Uruguay, Argentina, Chile	77.6–82.0	5.6–6.2	8.6–10.1	2.9–3.5	2.5–3.2	6.0–6.7
(2 ♂, 1 ♀, 1 U)	4	4	4	4	4	4
<i>L. ridibundus</i>		5.4	8.2	3.0	2.9	5.8
Holland (4 ♂, 4 ♀)	73.6	5.0–5.7	6.8–9.5	2.6–3.4	2.6–3.2	5.5–6.28
	71.6–76.7	8	8	8	8	8

Table 9.—Overall skeletal proportions of selected species of *Larus*, based on measurements in Tables 3–8. A, length of skull. B, length of rostrum. C, length of sternum. D, length of coracoid. E, length of humerus. F, length of femur. G, length of tibiotarsus.

	B/A	(A-B)/C	C/F	D/F	E/F	F/G
<i>L. utunui</i>	0.572	0.729	1.27	0.755	1.96	0.508
	1	1	1	1	1	1
<i>L. novaehollandiae</i>	0.515	0.739	1.33	0.789	2.01	0.493
	0.504–0.524	0.712–0.765	1.29–1.38	0.765–0.808	1.96–2.07	0.474–0.508
	11	11	11	11	11	11
<i>L. atricilla</i>	0.540	0.734	1.37	0.851	2.28	0.501
	0.521–0.548	0.701–0.764	1.32–1.41	0.823–0.872	2.22–2.32	0.492–0.509
	9	9	9	9	9	9
<i>L. cirrocephalus</i>	0.534	0.705	1.40	0.796	2.11	0.494
	0.534–0.535	0.690–0.724	1.33–1.51	0.757–0.831	2.07–2.14	0.488–0.502
	3	3	4	4	3	3
<i>L. maculipennis</i>	0.530	0.728	1.40	0.814	2.09	0.484
	0.526–0.534	0.722–0.734	1.38–1.45	0.771–0.850	2.05–2.12	0.470–0.498
	5	4	4	4	4	4
<i>L. ridibundus</i>	0.518	0.692	1.51	0.798	2.16	0.480
	0.514–0.526	0.644–0.726	1.41–1.62	0.764–0.837	2.09–2.23	0.465–0.495
	8	8	8	8	8	8

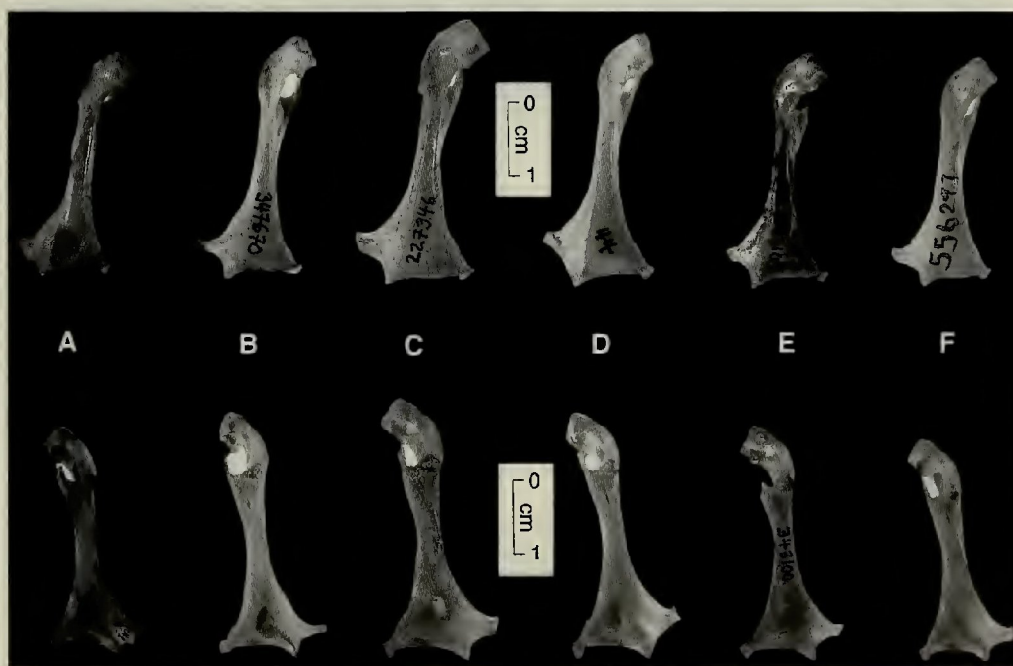


Fig. 5. The coracoid of *Larus* in ventral (above) and dorsal (below) aspects. A, *L. utunui*. DAPT 23, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

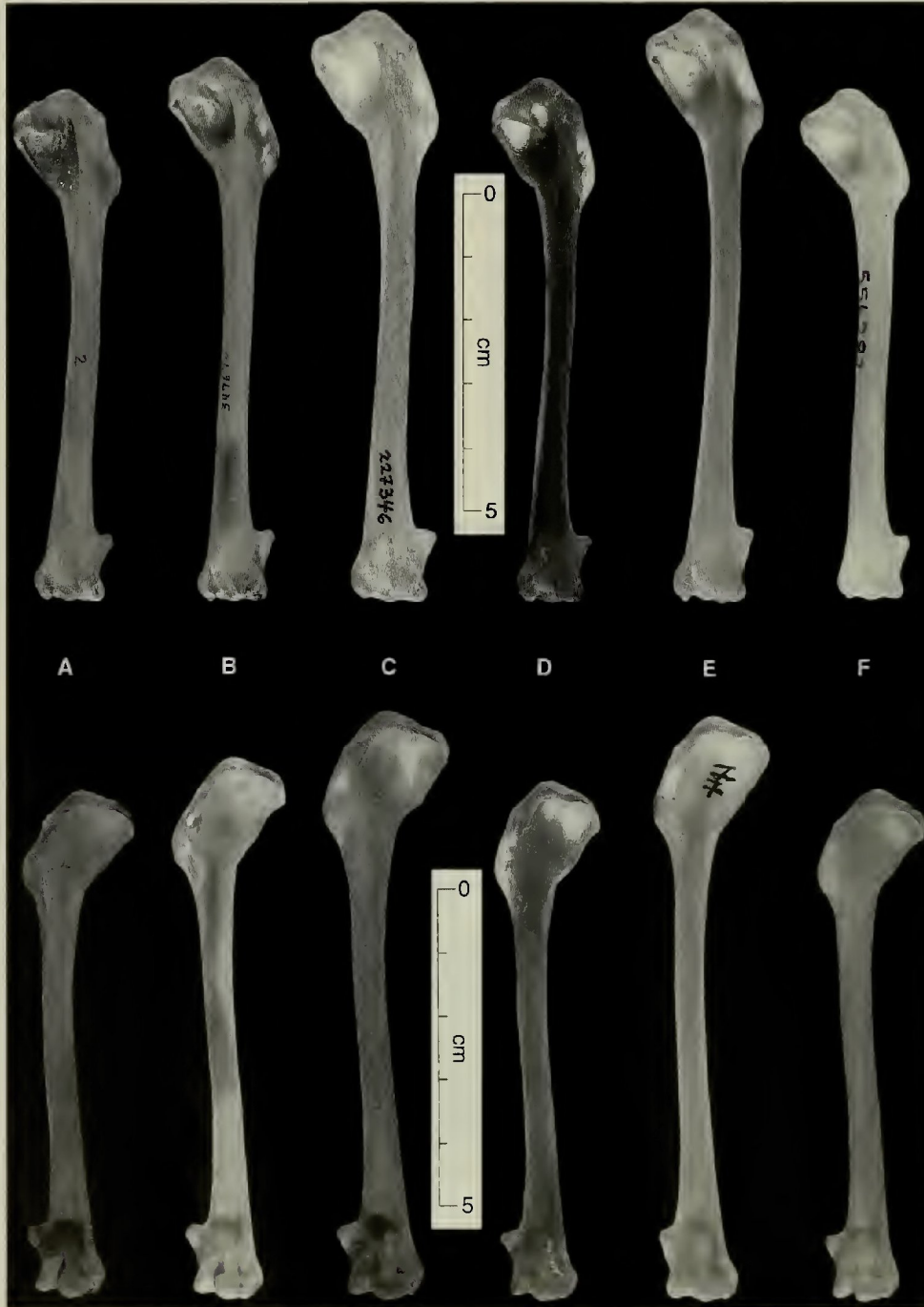


Fig. 6. The humerus of *Larus* in anconal (above) and palmar (below) aspects. A, *L. utuui*, DAPT 2, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

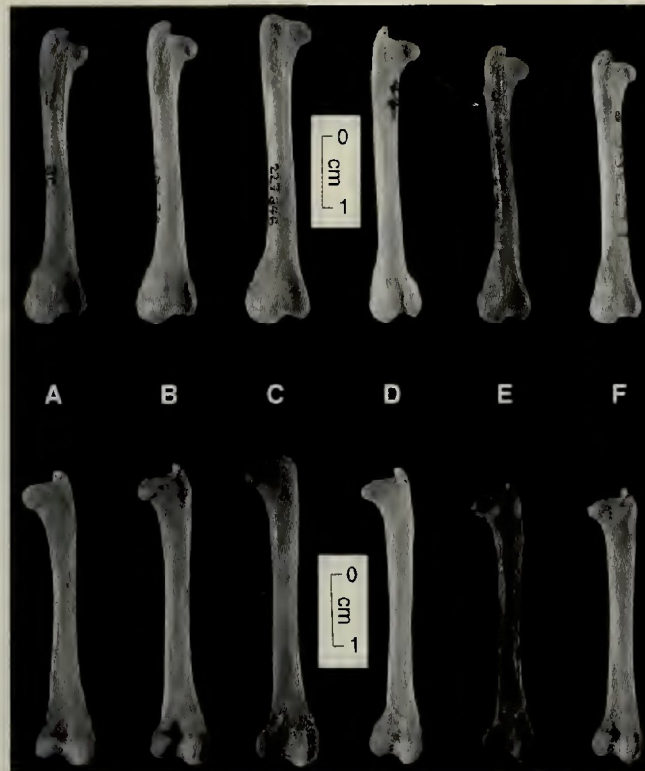


Fig. 7. The femur of *Larus* in anterior (above) and posterior (below) aspects. A, *L. utunui*, DAPT 28, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

DAPT 28 (Fig. 7); tibiotarsus, DAPT 30 (Fig. 8).

Etymology.—From the Tahitian words *utu* (“bill of bird”) and *nui* (“large”) (Andrews & Andrews 1944:96, 189), referring to the disproportionately large bill of the new species. The name *utunui* is used as a noun in apposition.

Discussion

Distribution.—The 12 bones of *Larus utunui* make it the sixth most common of 33 indigenous species of birds at the Fa’ahia site (Steadman & Pahlavan 1992). The distal end of a humerus (DAPT 40) of *L. utunui* is from a juvenile bird that probably was volant but less than six months old and thus unlikely to have dispersed far from its place of hatching. This juvenile speci-

men and the relatively high number of adult specimens together argue that *L. utunui* was a breeding resident rather than migrant species on Huahine. The 11 adult bones are quite possibly from a single individual, whose interorbital salt gland depressions differ in no obvious way from those of continental gulls.

No other bones of gulls have been discovered in prehistoric deposits from the southern hemisphere portion of tropical Polynesia, including the more than 13,000 identifiable bird bones from archaeological sites in the Marquesas. In the Hawaiian Islands (northern hemisphere), a gull also occurs in mid-Holocene deposits, apparently an unnamed endemic species of *Larus* (Olson & James 1982, Burney et al. 2001). Gulls are very rare vagrants today in trop-

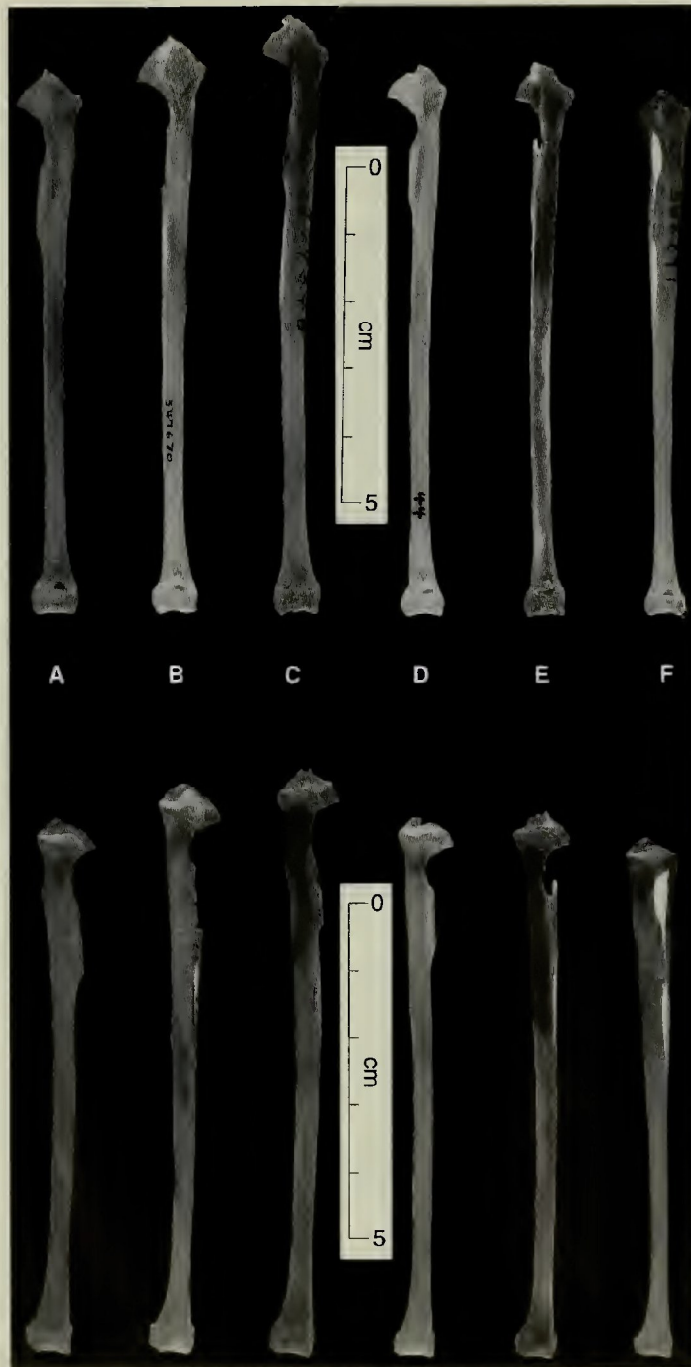


Fig. 8. The tibiotarsus of *Larus* in anterior (above) and posterior (below) aspects. A, *L. uttini*, DAPT 30, Huahine, Society Islands, French Polynesia; B, *L. novaehollandiae* ♂, USNM 347670, Northern Territory, Australia; C, *L. cirrocephalus* ♂, USNM 227346, Buenos Aires, Argentina; D, *L. atricilla* ♀, NYSM 44, Florida; E, *L. maculipennis* ♂, USNM 343100, Llico, Chile; F, *L. ridibundus* ♂, USNM 556297, Leiden, Holland.

ical Polynesia outside of Hawaii; all records (summarized in King 1959, Sibley & MacFarlane 1968, duPont 1976, Muse et al. 1980, Pratt et al. 1987) consist only of species that breed in the continental northern hemisphere. The rarity of gulls in the fossil record of Oceania might be due in part, however, to some taphonomic phenomena because gulls (as well as many other coastal or shoreline species) are fairly rare even in the continental fossil record (Emslie 1995).

Larus novaehollandiae probably is the closest living relative of the extinct *L. utunui*. This is reasonable biogeographically. Five subspecies of *L. novaehollandiae* were recognized by Peters (1934:322–323), although his *L. n. hartlaubi* of southern Africa now is generally regarded as a full species. *Larus n. novaehollandiae* is a widespread habitat generalist in Australia (Schodde & Tideman 1986:232), whereas *L. n. gunni* breeds on Tasmania. The two other subspecies of *L. novaehollandiae* inhabit Oceania. One is *L. n. forsteri* of New Caledonia (where it is common; Hannecart & Letocart 1980:129) and northern Australia. That this form is not endemic to New Caledonia suggests either that it is a rather recent arrival there or that gene flow continues between birds on New Caledonia and Australia. The last subspecies is *L. n. scopulinus* of New Zealand and adjacent islands (Chatham, Snares, Auckland, Campbell).

Other evidence of gulls in the Society Islands.—A species of gull may have lived in the Society Islands in the 19th century. I will summarize this confusing and frustrating story as briefly as possible. *Gavia pomarre* was described by Bruch (1853) from a specimen supposedly taken in the “Gesellschafts-Inslen” (= Society Islands). Bruch recognized *Gavia* as one of 12 genera within his expanded genus *Larus*. Bruch (1855) named another specimen of gull as *Gavia pomare*, the only difference in specific epithet being the presence of one “r” rather than two. Bonaparte (1857:228–229) listed *G. pomarre* as *Bruchigavia (Larus)*

pomare and as being from Tahiti. *Larus (Bruchigavia) pomare* was listed by Gray (1859:57) as being from Tahiti and the Marquesas Islands.

The holotypes of both *Larus pomarre* and *L. pomare* were examined in the Naturhistorisches Museum Mainz by Saunders (1878:185–187, 1896:235, 237), who illustrated the three outer primaries of each specimen. Saunders regarded *L. pomarre* as a juvenile specimen of *L. novaehollandiae*, whereas he regarded *L. pomare* to represent *L. bulleri*, which is endemic to New Zealand. This treatment was followed as well by Dwight (1925:91, 279, 293, 295).

The entire Bruch Collection at the Naturhistorisches Museum Mainz was destroyed during World War II along with all associated labels and other information (U. Schmidt in litt. to S. L. Olson, 7 March 1990). Thus the only way to evaluate the identity of *L. pomarre* and *L. pomare* is from written descriptions and illustrations of the 19th century. The bill of *L. pomarre* (holotype illustrated by Bruch 1853: plate II) is much smaller than that of *L. utunui*. The drawing of the holotype of *L. pomare* Bruch (1855: plate IV) shows a slightly larger and differently patterned bill than in *L. pomarre*, although this bill nevertheless is also much too small for the specimen to represent *L. utunui*.

Holyoak & Thibault (1984:80) and Pratt et al. (1987:325) regarded the records of *Larus novaehollandiae* from the Society Islands (based on *L. pomarre*) to be erroneous. Other than the literature just summarized, the historic evidence of *Larus* in the Society Islands is based on the accounts of two explorers. First is the mention of “gulls” on Tahiti in 1797 by Smith (1813: 82). Because Smith also mentioned “noddies” (*Anous* spp.) but not terns, his “gulls” may refer to terns (*Sterna* spp. or *Gygis candida*). On the other hand, Bennett (1840:161) mentioned “gulls” as well as “terns or noddies” as being seen on Ra’iatea in 1834.

To conclude, the possible occurrence of

a gull in the Society Islands in the 19th century is based on evidence that cannot be corroborated by a specimen today. If such a gull existed, its smaller bill (as depicted at the time of its description) would preclude it from being the newly described *Larus utunui* of Huahine.

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