

Idaho/Nevada

file Anaho NWR / Pop mgmt

Memorandum

TO : Files, Anaho Island NWR
Stillwater Wildlife Management Area

DATE: June 8, 1986

FROM : Wildlife Biologist, Steve Thompson
Fallon, Nevada

SUBJECT: Results of population estimates for Anaho Island NWR.

Introduction

Anaho Island is a 248 acre National Wildlife Refuge established by Executive Order 1819 on September 4, 1913, by Woodrow Wilson. The island is surrounded by land owned by the Pyramid Lake Paiute Tribe. Primary purpose of Anaho Island NWR is to provide safe nesting habitat for colonial nesting species. The island is one of nine major breeding areas used by the western population of American White Pelicans.

Methods

Anaho Island NWR was censused according to procedures outlined in the Stillwater WMA station Wildlife Inventory Plan. The plan calls for three trips to Anaho Island in May, June and July. An effort is made to count total nesting birds and estimate the number of nests for the following species: American White Pelican, Double-crested Cormorant, Great Blue Heron, California Gull, and Black-crowned Night Heron. The location of each nesting colony is then mapped on xeroxed copies of aerial photographs.

The counts of nesting birds is conducted from a vantage point approximately 3/4's of the way to the top of Anaho Island, on the northeast side (Figures 2, 3, & 4). We landed on the island by 0900 and started counting by 1000. Counts were done with a 20-60x spotting scope on a tripod. The first count was completed on May 13, 1986, by refuge manager Moe LeFever, Wildlife Biologist Steve Thompson and Region 1 Nongame Biologist Larry Neel (NDOW). The second count was completed on June 11, 1986, by Steve Thompson. On July 10, 1986, Ken Merritt (Assistant Refuge Manager) and Steve Thompson counted colonial nesters from 0800-1100. The weather was windy resulting in rough water conditions on the way to and from the island. We were forced to make a hasty retreat from the island at 1100 because of increasing wind and the resulting rough water. We recorded all birds, both on the island and in the water, as well as those in close proximity of the shoreline (50m).

Results

The exceptionally wet conditions in the Lahontan Valley have created almost ideal conditions for many species of colonial birds which use Anaho Island for nesting and Lahontan Valley for foraging.

American White Pelicans experienced a record year with an estimated 10,700 nests and 21,500 adults (Table 1). In fact, the numbers were so high that the standard methods for counting were almost impossible. It is hoped that experiments conducted with aerial photography will eliminate some of the errors encountered with estimating such a large nesting population. It was very difficult to determine without disturbing the nesting birds if all the adults were actually incubating eggs or brooding young.

It is possible that the numbers were actually higher than those estimated this year because the colonies were not well synchronized. This resulted in some birds fledging while other pairs were still brooding young. The young produced was probably closer to 10,000. American White Pelicans also nested on Pelican Island at the mouth of the Carson River in the Carson Sink (Fallon NWR). This area was last used for nesting by pelicans in 1953 (narative reports). On July 1, we discovered an estimated 350 American White Pelican nests which produced 300-350 young. As mentioned earlier the foraging conditions were excellent in the Carson Sink and the managed area of Stillwater WMA. It was estimated that from August-November pelicans ate over 4000 tons of rough fish (Tui Chub and Carp). Since 1980, the young produced at the Anaho Island colony has increased at an average annual rate of about 28%. It is likely that much of this increased production is a result of an increase of nesting adults from other colonies. Perhaps adults displaced by the recent flooding in the Great Salt Lake are now nesting at Anaho Island. Dramatic increases in the nesting population began in 1984 and continued into 1986. An interesting band return for Anaho Island was reported this year. Pelican 509-42730 banded on July 8, 1966, was shot in northwest Mexico in May 1986. The bird was almost 20 years old and was still in Mexico when the majority of the other Anaho Island birds were nesting.

The nesting population of Great Blue Herons has been increasing steadily according to our population estimates. In 1926, E. R. Hall reported only 10 nests. Bond (1940) reported an increase to 25 nesting pairs. By the early 1950s Marshall and Giles only found from 10-16 nests. The 135 nests counted for Anaho Island may represent both a population increase and shifting of nesting areas. In 1986, we didn't find any herons nesting at the Pinnacles on the north end of the lake. Although we didn't examine the area closely I am unaware of any nesting colonies at the mouth of the Truckee River.

Double-crested Cormorants also apparently had a good year with 2,660 nests in 1986. Alcorn (unpub. ms) reported only 123 nests in 1942. In the early 1950s Marshall and Giles (1953) found 1,028 cormorant nests and 1,650 young. As with the pelicans the cormorants also pioneered new nesting areas within the Stillwater WMA.

California Gulls were the second most abundant nesting species using Anaho Island NWR. In 1986, Anaho Island had approximately 2660 nests. On May 13, 1986, Larry Neel and Steve Thompson walked quickly through the nesting colony to determine the nesting chronology. Most of the nests sampled (n=193) had what appeared to be complete clutches under incubation. A few nests were just beginning to build scrapes and a few had very small young (-1/3 adult size). The nesting chronology was as follows:

<u>nests contents</u>	<u>number (%)</u>
scrapes	14(7)
1 egg	18(9)
2 eggs	54(28)
3 eggs	101(53)
4 eggs	2(1)
1 egg, 1 chick	1(1-)
2 eggs, 1 chick	1(1-)
2 chicks	2(1)
TOTAL SAMPLE	n=193

Hall (1926) reported 600 nests on the Pinnacles located on the north end of Pyramid Lake. Gromme (1930) reported finding seven nesting pairs on the island in 1927. Bond, in 1940, found about 200 nesting pairs on the island. In 1942, Ray Alcorn found 500 nests on Anaho Island. Mowbray saw an estimated 1,000 nests on May 22, 1948. By the early 1950s Marshall and Giles reported 1,800 adults and 1,700 nests. Since the 1950s the nesting population has almost doubled. They have also pioneered new nesting areas at Lahontan Reservoir and Stillwater WMA.

We didn't find any evidence of Caspian Tern nesting in 1986 on Anaho Island NWR. In fact we didn't record a Caspian Tern on any of our visits. The nesting colonies on Stillwater WMA have increased and expanded to new nesting areas on the Carson Sink.

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Steve Thompson

cc: Jack Waddell (ARW/RF-ID/NV)
Brian Sharp (ARW-MBC)
Carey Smith (ARW-OPR)
Gary Heron NDOW-Reno
Larry Neel NDOW-Fallon
Joe Jehl
Joe Ely, Tribal Chairman, Pyramid
Lake Paiute Tribe
Ray Alcorn
Great Basin Complex Office
G. Gary Scoppottone

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Table 1. Results of nesting population estimates for Anaho Island National Wildlife Refuge(NWR), 1986.

American White Pelicans	Adults at nests	young	estimated birds	estimated nests
May 13,	6,950	*	13,900	7,000
June 12	10,700	7,500	21,500	10,700
July 10	8,500	4,000@	16,000	5,000
Double-crested Cormorant				
May 13	3,000	*	5,000	2,500^
June 12			4,800	2,400
July 10		@	2,000	0
Great Blue Herons				
May 13	135		270	135
June 12	75		150	75@
July 10	25		25	0@
Black-crowned Night Herons				
May 13	1			
June 12	25		50	25
July 10	0			
California Gulls				
May 13	3,550		5,320	2,660
June 12	4,500		4,500	?@
July 10	0@			

* young too small to count

^ adult birds divided by 1.2 adults/nest

+ adults x 0.75 equals nests estimate

@ many or all young have recently fledged.

Table 2. Estimates of nesting population size of American White Pelicans on Anaho Island NWR, 1903-1986.

YEAR	# OF YOUNG	# OF NESTS	# OF ADULTS	YG/NESTS	SOURCE
1903	3000			<DIV 0>	Chapman(1908)
1917	5500			<DIV 0>	Evermann(1923)
1921	4181			<DIV 0>	Evermann(1923)
1924	4534	5000	10000	0.91	Hall(1925)
1931			7000	<N/A>	Thompson(1933)
1932	2994	3000	6000	1.00	Thompson(1933)
1940	3000			<DIV 0>	Bond(1940)
1942	3314			<DIV 0>	Alcorn(1943)
1944	5417			<DIV 0>	Alcorn(1946)
1950	4160	4900	9800	0.85	Marshall & Giles(1953)
1951	3742	5629	11258	0.66	Marshall & Giles(1953)
1952	4053	3973	7947	1.02	USFWS Anaho Island NWR
1953	3803	5598	11197	0.68	USFWS Anaho Island NWR
1954	5340			<DIV 0>	
1958	6400			<DIV 0>	
1959	3500	2750	5500	1.27	
1960	4000	3750	7500	1.07	
1961	3000			<DIV 0>	
1962	3000	3250	6500	0.92	
1963	2500	3000	6000	0.83	
1964	2314	2343	4686	0.99	
1965	2700	2400	4800	1.13	
1966	2550	2475	4950	1.03	
1967	1655	3172	6345	0.52	
1968	3090	2705	5410	1.14	
1969	3400	2800	5600	1.21	
1970	1822	3344	6688	0.54	
1971	2980			<DIV 0>	
1972	2980			<DIV 0>	
1973	3200			<DIV 0>	
1974	1725			<DIV 0>	
1975	1700			<DIV 0>	
1976	2475			<DIV 0>	
1977	1400	1500	3000	0.93	
1978	1540	1710	3420	0.90	
1979	1575	1750	3500	0.90	
1980	1400	1500	3000	0.93	Anderson(1982)
1981	2880	3000	6000	0.96	Anderson(1982)
1982	3350	3400	6800	0.99	Anderson(1982)
1983	3300	5700	11500	0.58	USFWS Anaho Island NWR
1984	4800	2950	6000	1.63	
1985	5000	4475	9000	1.12	
1986	7500	10700	21500	0.70	
AVERAGE	3352	3584	6982	0.94	

Table 3. List of other migratory birds noted while counting colonial nesting birds on Anaho Island NWR, Pyramid Lake, Nevada 1986.

May 13, 1986: Western Grebe(15), Mallard(1), Golden Eagle(1 sub. adult), Northern Harrier(1 pair), House Finch(1), Western Meadowlark(1), Rock Wren(1), Say's Phoebe(1) and Brown-headed Cowbird(1).

June 12, 1986: Canada Goose(125), Northern Harrier(2), Common Merganser, Rock Wren, Common Raven(2) with nest, Violet-green Swallows, American Kestrel female(1) at apparent nest in cliff, Snowy Egret(2).

July 10, 1986: Rock Wren, Northern Harrier young and Red-tailed Hawk.

13 MAY, 1986
FIGURE 1

STEVE THOMPSON
LARRY NEEL
NOE LEFEVER



(A) A.W. PELICAN 641
D.C. CORMORANT 207

(B) A.W. PELICAN 1025
+ LOAFERS 1200
D.C. CORMORANTS 341

(C) A.W. PELICANS 545
D.C. CORMORANTS 99

(D) A.W. PELICANS 4100
D.C. CORMORANTS 1660
G.B. HERONS 135
B.C. HERONS 1
CALIF. GULLS 1350 BIRDS

(E) CALIFORNIA GULL 2200 BIRDS
D.C. CORMORANTS 300 BIRDS

X = LANDING POINT

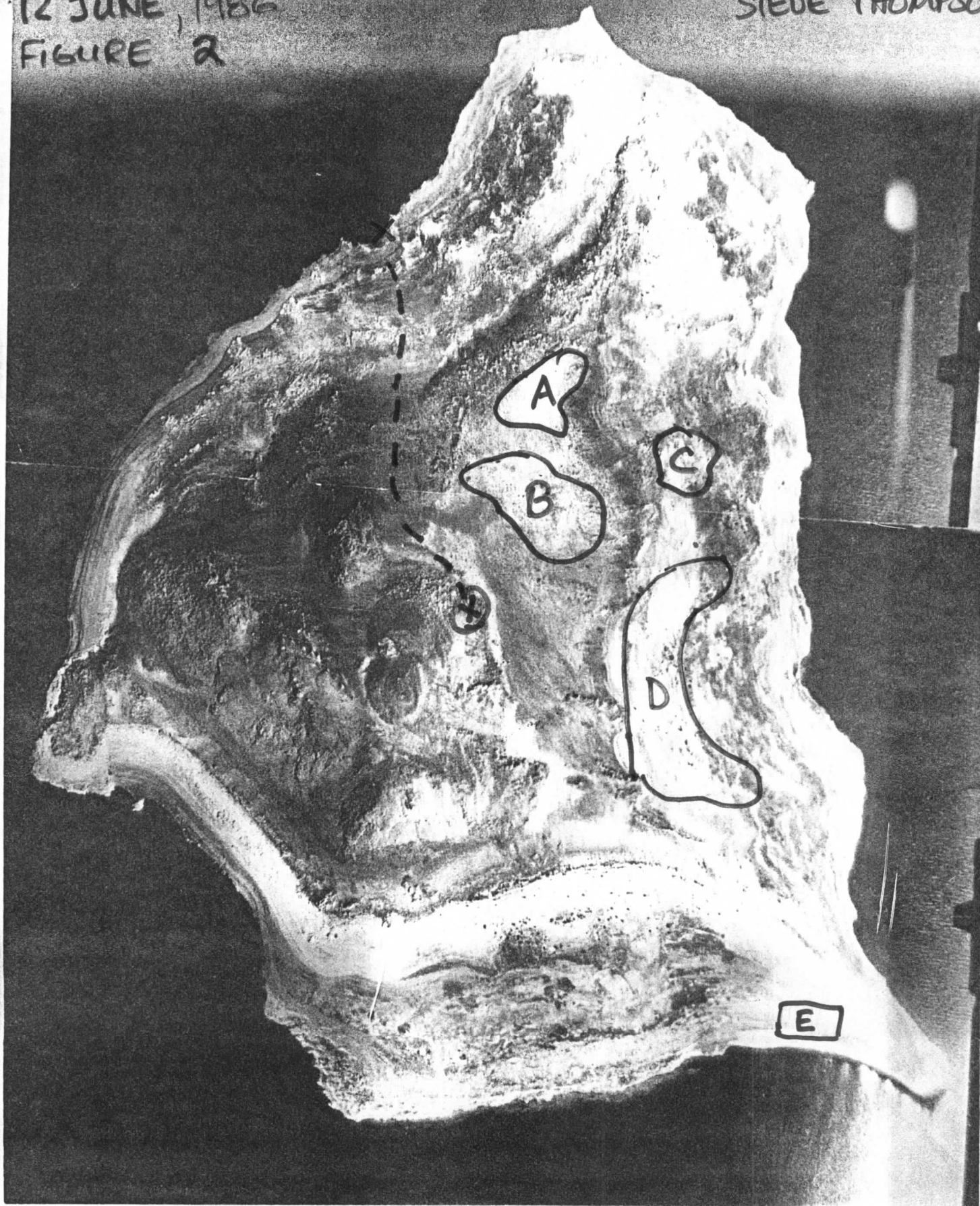
-- = WALKING ROUTE

(X) = OBSERVATION

O = POINT COLONY

12 JUNE, 1986
FIGURE 2

STEVE THOMPSON



- (A) A.W. PELICANS 1600 ADULTS
 800 NESTS
 D.C. CORMORANTS 225 NESTS
 (B) A.W. PELICAN 1400 YOUNG
 2600 ADULTS
 D.C. CORMORANTS 330 NESTS
 (C) A.W. PELICANS 500 NESTS
 500 ADULTS
 200 YOUNG
 D.C. CORMORANTS 135 NESTS
 (D) A.W. PELICANS 6000 NESTS
 6000 ADULTS
 5500 YOUNG
 D.C. CORMORANTS 1700 NESTS
 G.B. HERON 75 NESTS
 B.C. W. HERON 25 BIRDS
 (E) CALIFORNIA GULL 2300 BIRDS
 CALIFORNIA GULLS 2100 BIRDS

X = LANDING POINT

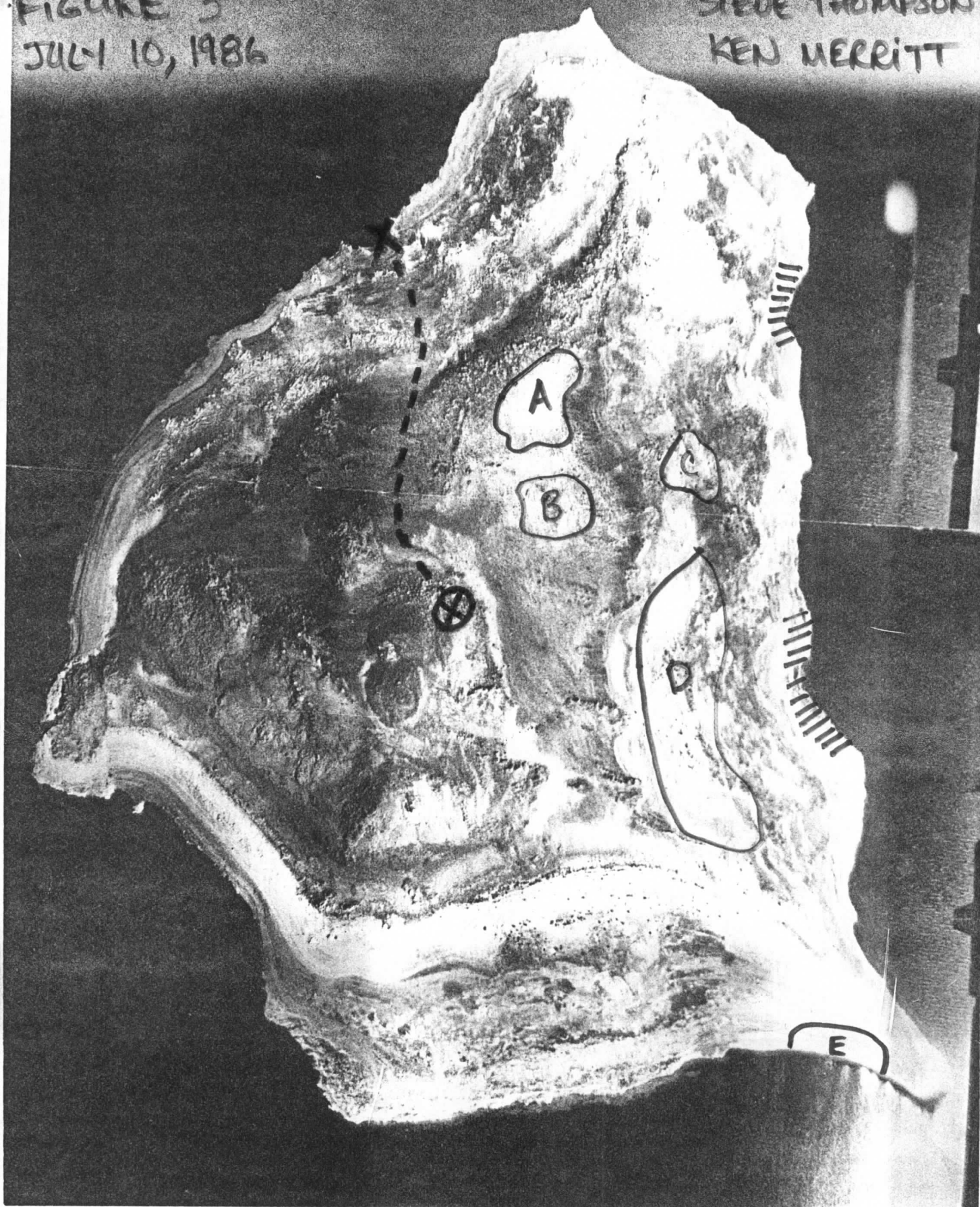
-- = WALKING ROUTE

(X) = OBSERVATION POINT

O = COLONY

FIGURE 3
JUL 10, 1986

STEVE THOMPSON
KEN MERRITT



- ① A.W. PELICAN 1570 ADULTS
650 YOUNG
D.C. CORMORANTS 250 BIRDS
- ② A.W. PELICAN 1050 YOUNG
1250 ADULT
D.C. CORMORANT 210 B
- ③ A.W. PELICAN 540 ADULT
360 YOUNG
D.C. CORMORANT 200 BIRDS
- ④ A.W. PELICAN 2450 ADULTS
1950 YOUNG
D.C. CORMORANT 1500 BIRDS
G.B. HERON 25 BIRDS
- ⑤ A.W. PELICAN 180 YOUNG
D.C. CORMORANT 200 BIRDS

≡ SHORELINE
CONCENTRATIONS

X = LANDING POINT

-- = WALKING ROUTE

⊗ = OBSERVATION POINT

○ = COLONY

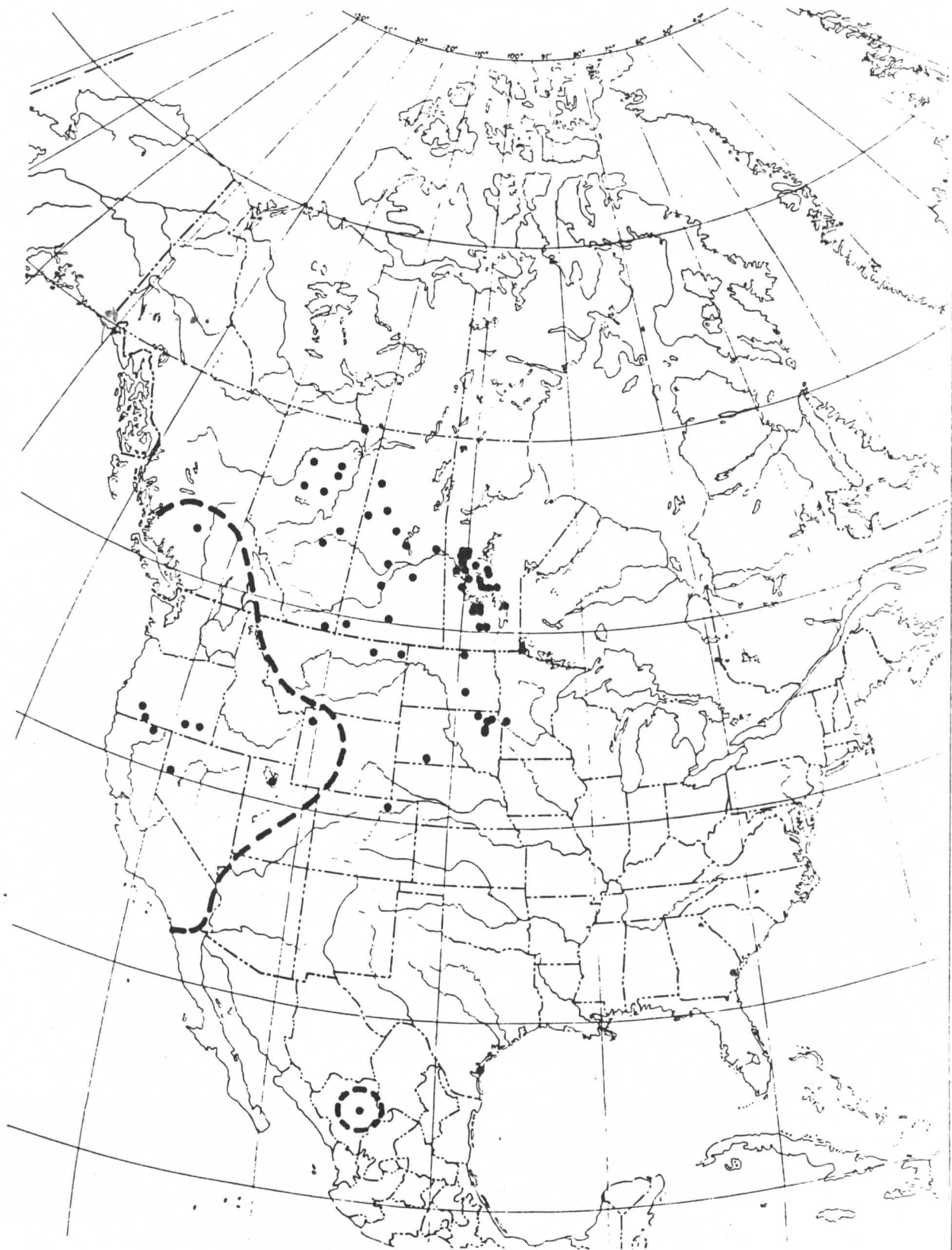


Fig. 9. Distribution of breeding colonies of American White Pelicans, western population delineated (Sidle et al. 1985)



Figure 4. Aerial view of Anaho Island NWR as it appeared September 1986, water elevation 10-1-86 3815.56 ft.



Figure 5. Aerial view of Southeast edge of colony. D. Bare alkaline area is created by nesting American White Pelicans.

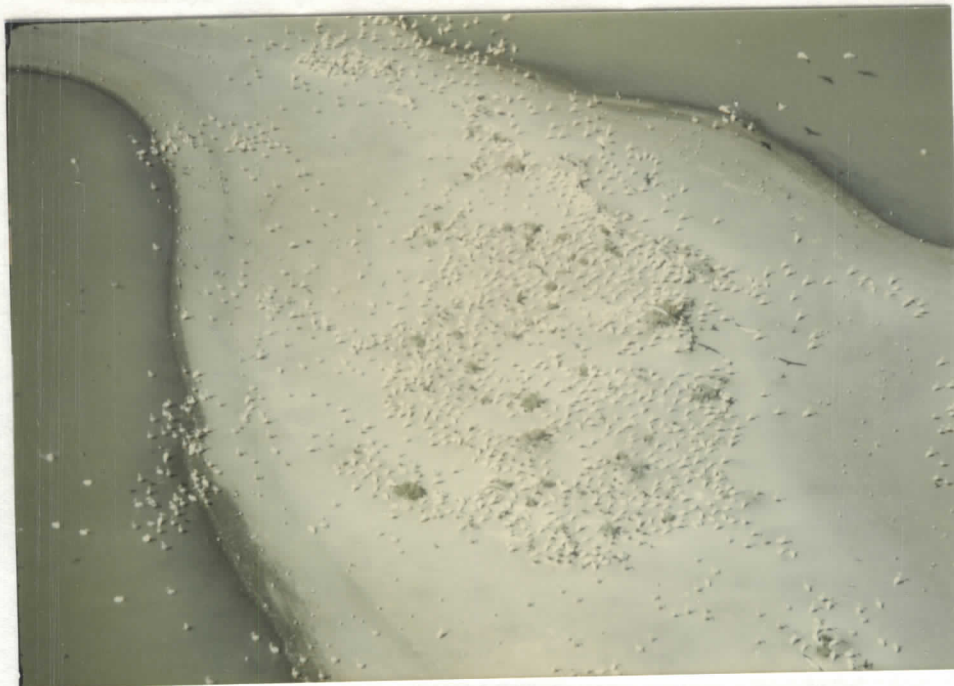


Figure 6. New nesting colony on Pelican Island, Fallon NWR (7-1-86)



Figure 7. Young American White Pelicans and Double-crested Cormorants just hatched on Pelican Island, Fallon NWR, July 1, 1986.