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Breeding Productivity of Shorebirds and Waterfowl at Bear River Migratory Bird Refuge, Utah 2011-12 Annual Reports

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2011-12 Report

Background

Context

The Great Salt Lake (GSL) is well known as one of North America's most important inland shorebird sites. At least 22 species of shorebirds utilize the GSL during migration and another eight species nest in habitats associated with the lake. The breeding populations of American Avocets (*Recurvirostra americana*), Black-necked Stilts (*Himantopus mexicanus*), and Snowy Plover (*Charadrius alexandrinus*) are among the highest in North America (Aldrich and Paul 2002). Consequently, the GSL is recognized as a site of hemispheric importance within the Western Hemisphere Shorebird Reserve Network (Andres et al. 2006). In addition, the GSL is also one of the most important breeding and migratory sites for waterbirds within the western hemisphere. The world's largest breeding populations of White-faced Ibis (*Plegadis chihi*) and California Gulls (*Larus californicus*) occur within the GSL ecosystem (Paul and Manning 2002). Despite the importance of the GSL to North American aquatic bird populations, little effort has focused on determining the factors that support healthy, self-sustaining populations. This knowledge is essential for the successful conservation and management of these populations.

Objectives

This project monitored the breeding productivity of American Avocet (AMAV), Black-necked Stilt (BNST), Northern Shoveler (*Anas clypeata*, NOSH), Mallard (*Anas platyrhynchos*, MALL), Gadwall (*Anas strepera*, GADW), and Cinnamon Teal (*Anas cyanoptera*, CITE) in 2011, and AMAV, BNST, Snowy Plover (SNPL), and Wilson's Phalarope (*Steganopus tricolor*, WIPH) in 2012, using a standardized sampling protocol. This methodology allows for 1) assessment of current population health, based on breeding productivity, and 2) projection of species vulnerability.

Methods

Study Site

This study was conducted at the Bear River Migratory Bird Refuge (BEAR). BEAR is located 15 miles west of Brigham City, Utah. The refuge covers nearly 30,000 ha and consists of impounded wetlands, marshes, uplands, and open water. Productivity data was collected from May 4-July 15, 2011 and May 4-July 27, 2012. This site has an active predator management program. Mammalian nest predators such as raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*) and fox (*Vulpes vulpes*) are removed.

Species

Both of these studies focused on two of the same species of shorebirds breeding at BEAR: American Avocet and Black-necked Stilt. Additionally, the study conducted in 2011 focused on four species of waterfowl breeding at BEAR including Northern Shoveler, Mallard, Gadwall, and Cinnamon Teal. A small number of Lesser Canada Goose (*Branta canadensis parvipes*, LCGO) and American Coot (*Fulica americana*, AMCO), nests were also monitored as they were encountered in 2011. In 2012, two other shorebirds were also monitored: Snowy Plover and Wilson's Phalarope.

The AMAV is a semi-colonial shorebird with a distinctive appearance (Figure 1). This species has a long recurved bill, bluish legs, and a black-and-white chevron pattern on its back (Figure 1). Breeding adults have a rusty to salmon colored head and neck which is replaced by white to light gray plumage during the pre-basic molt. AMAV are common summer residents of the GSL. Local breeders arrive in middle to late March with first eggs laid in April. Pairs select nest sites in areas with little or no vegetation, thus providing an unobstructed view by the attending adult (Cavitt 2005). Consequently, nests are frequently located in shallow emergent wetlands, vegetated mudflats, sparsely vegetated islands or along dikes. The modal clutch size of AMAV is 4 eggs, and incubation commences following laying of the penultimate egg (Cavitt 2004, 2005). Both sexes alternate incubation for 23 days. Young are precocial and remain in the nest for only 24 hours after hatching. Upon nest-leaving, adults lead young to brooding/nursery sites, which contain shallow water and dense vegetation for cover (Cavitt 2005).

Figure 1. American Avocet

BNSTs (Figure 2) are a loosely colonial shorebird that can be found breeding throughout western North America. Its black and white patterning and long reddish colored legs readily distinguish this bird from any other (Figure 2). BNSTs are also a common summer resident within the GSL. Adults begin arriving in early April with first eggs laid in late April to early May. There is some overlap in nest site selection with AMAV, but BNST tend to select sites with slightly

Figure 2. Black-necked Stilt

taller and denser vegetation. Both shallow emergent wetlands and vegetated mudflats are used frequently for nesting. Modal clutch size is 4 eggs, and incubation commences following laying of the penultimate egg. Both sexes alternate incubation for 23 days. Young are precocial and remain in the nest for only 24 hours after hatching. Upon nest-leaving, adults lead young to brooding/nursery sites, which contain shallow water and dense vegetation for cover (Cavitt 2005).

The SNPL (Figure 3) is a small shorebird found breeding along the Pacific and Gulf coasts and within the western interior of North America (Figure 3). This species is fairly cryptic in coloration as the pale brown upper parts and white under parts match the colors found on the beaches, sparsely vegetated mudflats and salt-evaporation ponds where this species commonly nests. Arrival in Utah begins in early April with first nests initiated in mid to late April (Behle and Perry 1975, Paton 1995). The modal clutch size is 3 eggs, which are incubated for approximately 27 days. Both parents alternate incubation duties but females will often desert the brood shortly after hatching to begin another nest (Page et al. 1995). Following hatching, the young remain in the nest for only a few hours. The young are able to feed themselves after hatching but are brooded by parents for several days.

Figure 3. Snowy Plover

WIPHs are small shorebirds found breeding mostly in the northwestern United States and Southwestern Canada. Male and female plumage differs during breeding season, with female displaying a brighter plumage. Both males and females have a grayish head, with darker brown streaks down the side of the neck. For females, the throat is a rusty cinnamon color, whereas the male has a white throat. Both sexes have brown-gray wings and back, with a white underbelly and rump. Bills and legs are black for both. Females are also larger than males. WIPH are unique in that there is a role-reversal of the sexes. Females compete with other females for a mate. The males take on incubating duties. The modal clutch size is 4 eggs, which are incubated for about 23 days. After hatching, the young are able to feed themselves but are brooded by the male (Colwell & Jehl, 1994).

The NOSH is a medium-sized dabbling duck (Figure 4). All adult plumages are characterized by a large blue patch on the forewing. The blue patch is a muted blue-gray in female and juvenile NOSH; in adult males, it is bright light-blue with a marked strip at the trailing edge. When selecting a nest site, NOSH prefers short vegetation cover. Of 37 nests in Utah, 65% were found in saltgrass (*Distichlis spicata*; Williams and Marshall 1938). Pairs fly together in search of nest sites, but the female ultimately selects the nest site by probing and pecking at vegetation while they walk; the male is generally inactive (Poston 1969). The modal clutch size of NOSH is 8-12 eggs, and the female does all incubation. Young are precocial and leave the nest shortly after hatching. The female leads her young from the nest to suitable brood-rearing habitat.

Figure 4. Northern Shoveler

Figure 5. Mallard

The MALL is the most familiar and widely distributed of the dabbling ducks (Figure 5). The adult breeding male has a conspicuous dark-green head, white neck ring, violet speculum and a characteristic black tail-curl. The female is drab compared to the male, with a buff-colored head and a darker eye-stripe. She has patterns of dark brown upper-wing coverts with buffy edges, grayish primaries, and a distinctive speculum of blue to violet edged in black and white. MALL usually nest on ground in upland areas near water. The nest is placed under overhanging cover or in dense vegetation for maximum concealment. Although usually an upland nester, MALL is more likely than other dabbling ducks to nest in wetlands or over water. Cover vegetation at overwater and wetland nest sites includes reedgrass, bulrush, cat-tail, slough sedge and grass (Krapu et al. 1979b). The modal clutch size for MALL is 10-12 eggs. The average incubation period is 28 days, and incubation is performed by the female only. Young are precocial and gradually become more mobile and steady within 24 hours of hatching (Bjarvall 1968). Young usually depart the nest on the morning after hatching.

Figure 6. Gadwall

The GADW is another medium sized dabbling duck that can be found frequently at the wetlands of the Great Salt Lake (Figure 6). The breeding male GADW has a mottled grey plumage, black rump and undertail coverts, and white speculum. The female is mottled brown and also has a white speculum. The GADW nests in fields and meadows, and on islands and dikes in marshes. Nest site selection depends on location (i.e., island versus mainland), availability, density and height of vegetation, and water conditions (e.g., drought). Nests are typically founds in dense brush, forbs, and/or grasses in dry areas. The modal clutch size for GADW is 8-12 eggs. Incubation last about 26 days, and is performed by the female only. Young are precocial and depart the nest 24-36 h after hatching. The female leads the young from nest to brood-rearing habitat, where ducklings feed on a diet of invertebrates.

Figure 7. Cinnamon Teal

The CITE is a small dabbling duck, and is one of the least numerous ducks in North America (Figure 7). The breeding male is a dark chestnut color with a red eye and dark bill. The female is similar to other female ducks (cryptically colored) mostly brown and buff. Both male and female CITE have bright blue upper wing coverts. CITE use freshwater (including highly alkaline) wetlands of various sizes, including large marsh systems, natural basins, reservoirs, sluggish streams, ditches, and stock ponds. CITE prefer to nest near water in low, dense perennial vegetation such as Baltic rush, saltgrass, western wheatgrass, and various forbs; however,

when upland cover is lacking or degraded, CITE will nest adjacent to or over water in dense bulrushes, cattails, and sedges (Williams and Marshall 1938). The modal clutch size for CITE is 8-12 eggs. Incubation lasts 21-25 days, and is performed by the female only. Young are precocial and highly mobile. They leave the nest within 24 hours of hatching, where they follow the female to the nearest source of water.

The AMCO is a charcoal gray marsh bird with a white bill. Males are slightly larger than females on average, but plumage on both is roughly the same. During breeding season, AMCO are widespread in North America. AMCO prefer fairly shallow freshwater bodies of water with emergent vegetation. A normal clutch size for AMCO is usually between 8 and 12 eggs. Incubation period is about 23 days and is performed by both parents. Young are precocial and able to leave the nest as little as 6 hours after hatching. If protected, young may stay in the nest up to 2 days after hatching. (Brisbin, Lehr & Mowbray. 2002)

General Procedures

Each study site utilized for breeding productivity consists of replicated plots that were visited every three to four days from early May until mid-July in 2011 for all species, and from early until late May in 2012 for AMAV and BNST. However, in 2012, one visit was missed due to stormy weather. Because of this missed day, there was a period of approximately 9 days between observations for AMAV and BNST. WIPH and SNPL were monitored later in 2012. SNPL were monitored from mid-June to late July, while WIPH were visited from early to late June.

Productivity

Nests were located by either systematic searches of potential nesting sites or by observing the behavior of adults. We recorded the location of each nest with a Magellan Explorist 100 Global Positioning System (GPS) unit. To facilitate relocating nests in dense colonies, each nest was marked with a 10cm wooden tag, placed in the ground at the edge of the nest so only the top 3-4cm was visible (Figure 8). A unique nest identification number was written on each tag with permanent marker.

Figure 8. Shorebird nest showing marking technique

Because shorebirds lay only 1 egg per day, the laying date of the first eggs (clutch initiation date) was determined by back dating when nests were found prior to clutch completion.

Clutch size was only assigned for a nesting attempt when the same number of eggs was recorded on two consecutive visits and there was evidence that incubation had commenced (i.e. adult behavior and egg temperature). Clutch initiation dates were also estimated for nests located after clutch completion and in which young successfully hatched. The incubation stages of nests found with complete clutches were estimated by egg floatation, which allowed for the prediction of hatching date. The status of

extant nests was determined by visitations every three to four days until either eggs hatched or the nest failed.

Nests were defined as successful if at least one young hatched and survived to nest leaving. Nests were presumed successful if eggs disappeared near the expected date of hatching and there was evidence of a successful hatching. This evidence included the presence of young, the presence of eggshell tops and bottoms near the nest, egg shell fragments ~1-5 mm in size and detached egg membrane within the nest lining (Mabee 1997, Mabee et al. 2006). A failed nest was classified as depredated if all eggs disappeared prior to the expected date of nest-leaving and there was no basis for weather or flood induced mortality. Further evidence of egg depredation included eggshell pieces in the nest (>5 mm in size), and yolk within the nest material.

For each nest, we recorded the following information – date of clutch initiation (i.e. nest initiation), maximum number of eggs, clutch size, date of hatching, number of eggs hatched, number of young produced and nest fate. From this data, we were able to calculate hatchability, daily nest survival rate, and nesting success. Hatchability of eggs is defined as the proportion of eggs present at hatching time that produces young (Koenig 1982). Consequently, eggs taken by nest predators or those flooded are not included in the calculation. Eggs removed for USGS study were not included in the hatchability calculation.

For calculations, if 2 different species were represented in one nest, these were not included in calculations of productivity. Five nests matched these criteria. One nest contained both AMAV and BNST eggs; three of these nests contained both CITE and MALL eggs; and one nest contained both CITE and GADW eggs.

Analyses

We examined nesting success by estimating daily survival rates (DSR) and their associated standard errors according to Mayfield's (1961, 1975) method as modified by Johnson (1979) and Hensler and Nichols (1986). Since this study focuses on depredation, all nests that failed because of desertion or flooding were not included in these calculations. Also, nests that had an *unknown* fate were not included in these calculations. Results of these analyses are presented in Tables 2 and 4.

Results and Discussion

Nesting Chronology

Shorebirds

AMAV and BNST

A total of 344 AMAV, and 8 BNST nests were located and monitored at BEAR during the 2011 breeding season. The first AMAV nest monitored for this project was initiated on April 26, whereas the first BNST nest monitored was initiated on May 24. During the 2011 breeding season, the average date of nest initiation was May 23 for AMAV and June 8 for BNST. The last young left AMAV nests on July 17 and BNST left on July 13.

A total of 115 AMAV, and 8 BNST nests were located and monitored at BEAR during the 2012 breeding season. The first AMAV nest monitored for this project was initiated on May 4, as was the first BNST nest. During the 2012 breeding season, the average date of nest initiation was April 21 for AMAV. The last AMAV young left nests on May 17. No BNST nests were successful.

SNPL

A total of 6 SNPL nests were located and monitored at BEAR during the 2012 breeding season. The first nest monitored for this study was initiated on June 2. The average date of nest initiation was June 10 for SNPL. The last SNPL young left its nest on July 22.

WIPH

A total of 3 WIPH nests were located and monitored at BEAR during the 2012 breeding season. The first nest monitored for this study was initiated on June 1. Only 1 WIPH nest was determined to be successful. The last WIPH young left the nest on June 25.

Waterfowl

Only 1 NOSH nest was located and monitored at BEAR during the 2011 breeding season. The nest was unsuccessful. Because of this, no nest initiation date was determined.

A total of 10 MALL nests were located and monitored at BEAR during the 2011 breeding season. The first MALL nest monitored for this project was initiated on June 20. During the 2011 breeding season, the average date of nest initiation was June 27. The last MALL young left its nest on August 7.

A total of 12 GADW nests were located and monitored at BEAR during the 2011 breeding season. The first GADW nest monitored for this project was initiated on May 15. During the 2011 breeding season, the average date of nest initiation was June 4. The last GADW young left its nest on July 29.

A total of 25 CITE nests were located and monitored at BEAR during the 2011 breeding season. The first CITE nest monitored for this project was initiated on April 24. During the 2011 breeding season, the average date of nest initiation was June 6. The last CITE young left its nest on July 29.

A total of 5 LCGO nests were located and monitored at BEAR during the 2011 breeding season. The first LCGO nest monitored for this project was initiated on April 22. The last LCGO young left its nest on May 25.

Other

A total of 3 AMCO nests were located and monitored at BEAR during the 2011 breeding season. The first AMCO nest monitored for this project was initiated on May 9. During the 2011 breeding season, the average date of nest initiation was May 28. The last AMCO young left its nest on July 3.

Productivity

Shorebirds

AMAV and BNST

In 2011, the modal clutch size for both AMAV and BNST nests was 4 eggs. Measures of productivity are listed in Table 1 by species. The most important cause of nest failure for AMAV was predation. Sixty-five percent all nests monitored failed (see Figure 9).

In 2012, the modal clutch size for both AMAV and BNST nests was 4 eggs. Measures of productivity are listed in Table 1 by species. Due to the limited sample size for BNST, measures of productivity listed in Table 1 may not be an accurate depiction for this species. A total of 2.7% of all AMAV and 0% of all BNST eggs laid produced young to nest-leaving. The main cause of nest failure for AMAV was depredation. While this was not the case for BNST, it should be noted that sample size for BNST was very small. It should also be noted that there were three BNST nests that failed for an unknown reason, meaning evidence or data recorded were lacking to determine cause of nest failure. Almost 83% of all AMAV nests monitored failed (see Figure 9), and 100% of BNST nests failed.

Hatchability for AMAV was 0.91 and 1.0 in 2011 and 2012 respectively. Too few BNST nests were successful and thus a hatchability could not be estimated. Hatchability is an important indicator of potential contamination. On average, the hatchability for uncontaminated populations of aquatic birds has been suggested to be above 0.91 (range from 0.906-0.938; Jehl 1971, Koenig 1982, and Ohlendorf et al. 1989).

The DSR for all AMAV and BNST nests are found in Table 2. In both 2011 and 2012, the majority of AMAV and BNST nests monitored for this study were located on the 3E islands. These islands are within 10 m of the dike and thus tend not to provide nesting birds protection from predators. The Mayfield nesting success estimates for AMAV in 2011 and 2012 are much lower than previous years (Figure 10). Field crew members have noticed raccoon tracks on the islands and have identified raccoons swimming within 3E.

SNPL

The modal clutch size was 3 for SNPL. Measures of productivity are listed in Table 1. Due to the limited sample size for SNPL, not all measures of productivity could be calculated. In 2012, 47% of the SNPL eggs laid produced young to nest-leaving. The DSR for all SNPL nests is found in Table 2.

Since SNPL were also monitored at 3 other sites, calculations were included for these sites for comparison in Table 3. Other sites include, the causeway to Antelope Island (CAUS), Saltair (SALT), and Shorelands (SHOR).

WIPH

The modal clutch size for WIPH was undetermined. Measures of productivity are listed in Table 1. Due to the limited sample size for WIPH, measures of productivity listed in Table 1 may not be an accurate depiction for this species. In 2012, 11% of the WIPH eggs laid produced young to nest-leaving. The DSR for all WIPH nests is found in Table 2.

Waterfowl

The modal clutch size was 7 for NOSH. Measures of productivity are listed in Table 4 by species. Due to the limited sample size for NOSH, measures of productivity listed in Table 4 may not be an accurate depiction for this species. The DSR for the NOSH nest is found in Table 5.

The modal clutch size was 7 for MALL. Due to the limited sample size for MALL, measures of productivity listed in Table 4 may not be an accurate depiction for this species. In 2011, 24% of MALL eggs laid produced young to nest-leaving. The DSR for MALL nests is found in Table 5.

The modal clutch size was 10 for GADW. Measures of productivity are listed in Table 4 by species. Due to the limited sample size for GADW, measures of productivity listed in Table 4 may not be an accurate depiction for this species. In 2011, 58% of GADW eggs laid produced young to nest-leaving. The DSR for GADW nests is found in Table 5.

The modal clutch size was 9 for CITE. Measures of productivity are listed in Table 4 by species. In 2011, 36% of CITE eggs laid produced young to nest-leaving. The DSR for CITE nests is found in Table 5.

The modal clutch size was 5 for LCGO. Measures of productivity are listed in Table 4 by species. Due to the limited sample size for LCGO, measures of productivity listed in Table 4 may not be an accurate depiction for this species. In 2011, 62% of LCGO eggs laid produced young to nest-leaving. The DSR for LCGO nests is found in Table 5.

The modal clutch size was 9 for AMCO. Measures of productivity are listed in Table 4 by species. Due to the limited sample size for AMCO, measures of productivity listed in Table 4 may not be an accurate depiction for this species. In 2011, 93% of AMCO eggs laid produced young to nest-leaving. The DSR for AMCO nests is found in Table 5.

Table 1. Measures of shorebird productivity at BEAR during 2011 and 2012. Mean clutch size, hatchability and number young produced to nest leaving (± standard error) for successful nests.

Year	Species	Total Eggs Laid (total nests)	Clutch Size (n)	Hatchability (n)	Total Young produced (avg.# eggs hatched/ nest)	# of Young Leaving successful Nest (n)
2011	AMAV	1182 (344)	3.63 ± 0.05 (266)	0.91 ± 0.01 (108)	404 (1.37)	3.48 ± .08 (116)
	BNST	30 (8)	3.83 ± 0.17 (6)		9 (1.29)	2.25 ± 0.48 (4)
2012	AMAV	368 (115)	3.69 ± 0.08 (49)	1 ± 0 (3)	10 (0.12)	3.33 ± 0.33 (3)
	BNST	27 (8)	3.33 ± 0.67 (3)	- -	- -	- -
	SNPL	17 (6)	2.8 ± 0.20 (5)		8 (1.6)	2.67 ± 0.33 (3)
	WIPH	9 (3)	- -	- -	1 (1)	1 (1)

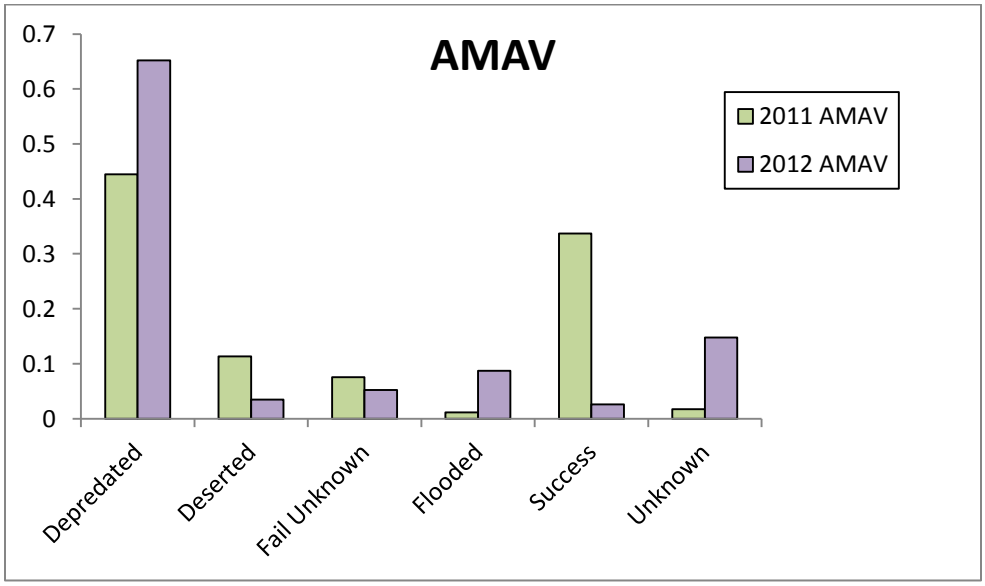

Figure 9. Proportion of AMAV nests at BEAR in 2011 and 2012 with associated nest fates.

Table 2. Nest daily survival rate (DSR ± standard error) of AMAV and BNST for 2011 and 2012; and SNPL and WIPH for the 2012 breeding season. Mayfield estimates and apparent nesting success are located below each DSR.

Year	2011		2012			
Species	AMAV (n)	BNST (n)	AMAV (n)	BNST (n)	SNPL (n)	WIPH (n)
DSR	0.98 ± 0.003 (295)	0.96 ± .02 (7)	0.90 ± 0.01 (84)	0.80 ± 0.08 (5)	0.97 ± 0.02 (5)	1 ± 0 (1)
Mayfield	0.37 (295)	0.36 (7)	0.08 (84)	0.01 (5)	0.46 (5)	1 (1)
Apparent	0.34 (338)	0.50 (8)	0.03 (98)	0 (8)	0.50 (6)	1 (1)

Table 3. Measures of Snowy Plover breeding productivity at each study site. See text for site abbreviations.

Breeding Variable	Site			
	BEAR	CAUS	SALT	SHOR
Total Nests Monitored	6	5	19	11
Julian Day of 1st Nest Initiation	154 (June 2, 2012)	132 (May 11, 2012)	125.5 (May 5, 2012)	141 (May 20, 2012)
Julian Day of Last Successful Nest Leaving	204 (July 22, 2012)	187.5 (July 6, 2012)	194.5 (July 13, 2012)	187.5 (July 6 ,2012)
Total Eggs Laid	17	14	52	30
Mean Clutch Size ± SE (n)	2.80 ± 0.20 (5)	2.80 ± 0.20 (5)	3.00 ± 0 (7)	2.70 ± 0.21 (10)
Mean Hatchability ± SE (n)	0.83 ± 0.17 (2)	1 ± 0 (5)	0.78 ± 0.22 (3)	0.90 ± 0.08 (7)
Mean # Young Produced / Successful Nest ± SE (n)	2.67 ± 0.33 (3)	2.80 ± 0.20 (5)	2.25 ± 0.48 (4)	2.57 ± 0.30 (7)
Total Young Produced	8	14	9	18
Mayfield Estimate of Nesting Success	0.46	1	0.06	0.56
Apparent Nesting Success	0.5	1	0.21	0.78

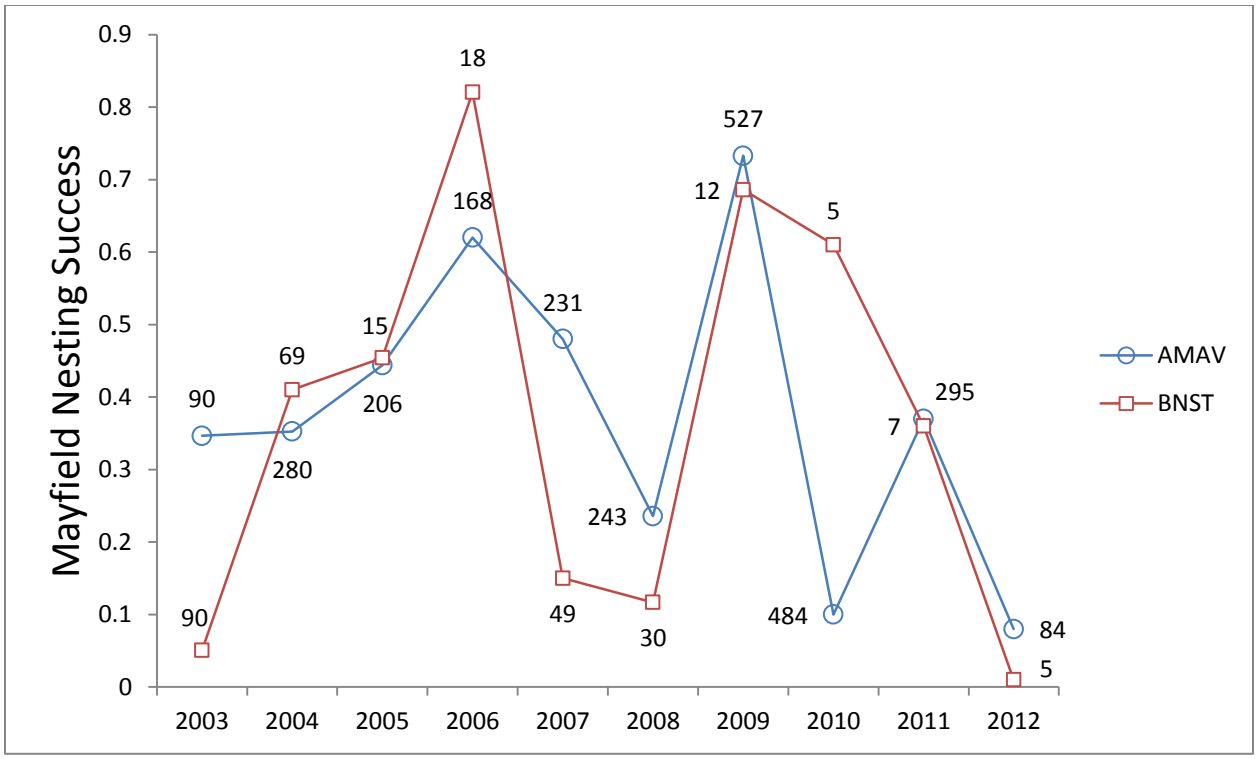

Figure 10. Nesting success at BEAR across years.

Table 4. Measures of AMCO, waterfowl, and LCGO productivity at BEAR during 2011. Mean clutch size, hatchability and number young produced to nest leaving (± standard error) for successful nests.

	Species	Total Eggs Laid (total nests)	Clutch Size (n)	Hatchability (n)	Total Young produced (avg.# eggs hatched/ nest)	# of Young Leaving successful Nest (n)
Year 2011	**AMCO**	29 (3)	9.33 ± 0.88 (3)	0.93 ± 0.04 (3)	27 (9)	9 ± 1.15 (3)
	CITE	232 (25)	9.30 ± 0.78 (20)	0.82 ± 0.04 (11)	92 (4.38)	8.36 ± 0.62 (11)
	GADW	93 (12)	10.43 ± 0.92 (7)	0.96 ± 0.02 (5)	45 (4.5)	9 ± 1.05 (5)
	LCGO	21 (5)	5 ± 1.15 (3)	0.60 ± 0.11 (3)	13 (2.6)	3.25 ± 0.48 (4)
	MALL	58 (10)	6.33 ± 0.88 (3)	0.83 ± 0.12 (3)	15 (1.88)	5 ± 1.15 (3)
	NOSH	7 (1)	7 (1)	- -	- -	- -

Table 5. Nest daily survival rate (DSR ± standard error) of AMCO, CITE, GADW, LCGO, MALL, and NOSH for the 2011 breeding season. Mayfield estimates and apparent nesting success are located below each DSR.

	AMCO (n)	CITE (n)	GADW (n)	LCGO (n)	MALL (n)	NOSH (n)
DSR	1 ± 0 (3)	0.97 ± 0.01 (19)	0.97 ± 0.01 (9)	0.97 ± 0.03 (5)	0.94 ± 0.03 (8)	- -
Mayfield	1 (3)	0.51 (19)	0.50 (9)	0.48 (5)	0.17 (8)	- -
Apparent	1 (3)	0.43 (21)	0.45 (11)	0.80 (5)	0.30 (10)	0 (1)

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