

A survey of wintering American Oystercatchers from Georgia To Virginia, U.S.A., 1999

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Using a variety of survey techniques we attempted to estimate the size of the wintering population of American Oystercatchers *Haematopus palliatus palliatus* along the Atlantic coast of eastern United States. Highest counts were from South Carolina with over 3,000 wintering birds; numbers approached 2,000 birds in coastal Virginia. Counts of less than 600 were from Georgia and North Carolina. Ninety percent of oystercatchers were roosting on wind produced shell mounds along salt marsh channels. The remaining birds occurred in singles or pairs along barrier island beach fronts. Average roost size was 106 birds (range 18-390). Surveys were most efficient two hours from high tide when all birds were roosting. Wintering flocks in all states south of South Carolina probably consist primarily of breeding birds from those states, whereas Virginia and North Carolina have both breeding and wintering birds. All roosting birds used edges of tidal creeks and (primarily) commercial oyster beds for foraging. The total population size for this region is estimated at 7,700 birds. The total Central and North American population is estimated to consist of 9,000 birds.

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INTRODUCTION

The American Oystercatcher is listed as a species of Special Concern in the state of Florida and rare under Georgia's Wildlife Protection Act, but has no risk status in any other state. One of the objectives of the October, 1999 meeting of the U.S. Shorebird Conservation Plan, held in Bodega Bay, California was to prioritize shorebird species in terms of their conservation status. Species whose total North American population size was less than 10,000 birds were given a higher composite score as a result of low population size (Brown *et al.* 2000) and hence were ranked high in terms of conservation prioritization. As a first step in the process of ranking, species population sizes of all North American shorebirds were estimated. The most recent estimate of the population size of the American Oystercatcher was based on outdated estimates of state breeding populations (Nol & Humphrey 1994) but indicated that this species could potentially be afforded greater conservation protection. The current survey was

conducted to attempt to establish more realistic and current estimates of the size of the North American population of the American Oystercatcher. American Oystercatchers are large, conspicuous birds, whose numbers on winter roosts can be accurately enumerated.

METHODS

The states of Virginia, North Carolina, South Carolina, and Georgia were surveyed, as these states contained the largest numbers of wintering birds, based on results of previous Christmas Bird Counts (CBC), and the coastlines were deemed manageable for surveying. Numbers of oystercatchers in the other states were estimated from results of Christmas Bird Counts from 1999 at locations of presumed high concentrations of wintering birds. In Georgia and South Carolina surveys were conducted by State Government employees. In North Carolina non-governmental organization personnel (Audubon Society) and federal (National Seashore) employees assisted state government



Table 1. Multiple counts of roosting American Oystercatchers in coastal Virginia and Georgia.

First count, date, state	Second count, date
125, 29 Sept (VA)	83, 8 Nov
122, 1 Nov (VA)	116, 9 Nov
90, 28 Oct (VA)	88, 8 Nov
66, 25 Oct (VA)	78, 7 Nov
261, mid-Oct. 99 (GA)	363, 16 Jan 2000

employees in the surveys. In Virginia surveys were conducted through The Nature Conservancy's Virginia Coast Reserve.

Because each state had different coastlines with respect to accessibility, each state opted for slightly different methodologies. Surveys were done by truck, boat, helicopter, or a combination of methods. Most of the largest known concentrations of roosting American Oystercatchers were counted. Surveys were conducted around high tides when the probability was greatest that oystercatchers would be congregated on the roosts as opposed to individuals scattered across difficult to access intertidal feeding areas.

RESULTS

The total number of American Oystercatchers in the four states (using extrapolations from North Carolina), was 5,785. Assuming no movement over the survey period (6 November to 11 December) between states, this is more than the twice the most recent estimate based on the number of adults known to breed in the Atlantic and coastal states (Davis 1999).

Virginia

The intracoastal waterway and connecting waterways were surveyed (approximately 80 km) from 6-8 November 1999, by 24' boat, travelling at 3km/hr. The north end of Chincoteague Island, from Deep Hole channel north, was surveyed by 14' outboard on 10 November 1999. A total of 1,883 oystercatchers were counted, most of these on high tide roosts. Ninety percent of all oystercatchers counted were found south of Wachapreague, VA, on state-owned salt marsh.

North Carolina

Beachfront habitat (216 km) was surveyed by truck and foot between 1 and 7 November 1999. Thirty oystercatchers were counted along this 216 km. If extrapolated to the 504 km of beachfront habitat in the state, an estimated 70 oystercatchers were assumed to be using this habitat. Fifty-three oystercatchers were counted in 165 km of sounds (intercoastal waterways,

river mouths, shell mounds and estuarine islands), surveyed by boat. Given an estimate of about 1,547 km of habitat within North Carolina's sounds, an extrapolation suggests 497 oystercatchers using these sites. Totals for the state are estimated at 567 birds, somewhat less than the 300 breeding pairs estimated for the state.

South Carolina

A statewide count was conducted 8-11 December 1999. A total of nine high tide boat surveys were conducted at 900 washed shell mounds. A minimum of 3,098 American Oystercatchers were counted. Of these 1,887 were counted in the Cape Romain area, but roosts of > 100 were also seen from Little River to Hilton Head Island. Beach habitat was not surveyed.

Georgia

The entire intracoastal waterway of Georgia and oceanfront beach were surveyed by helicopter travelling at 112 km/hr at 90 m height, within 1.5 hr of high tide. A total of 137 km were surveyed and 237 birds were counted.

General features of wintering birds

The major habitats on which roosting oystercatchers were counted were wave-tossed oyster shell mounds and elevated sections of dredge spoil islands. During feeding, oystercatchers were on old oyster beds, intertidal mud flats and along intertidal creeks and rivers, foraging on both ebb and flood tides.

Site tenacity of roosting birds

As a number of surveys were conducted in Virginia prior to the actual survey dates, roost numbers appeared quite constant suggesting a high degree of site fidelity to a roost, at least over a two-week period (Table 1). By contrast, over five-week periods numbers vary by 28-34% for Georgia and Virginia respectively (as proportion of larger count).

Other states

Christmas Bird Counts (CBC) estimates of oystercatchers

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Table 2. *Estimates of numbers of overwintering American Oystercatchers from non-surveyed states and Panama.*

State	Numbers of adult birds in 100th CBC (winter 1999; # of counts with AMOY's)	Max (count). from CBC's from previous 5 years (# of counts with AMOY's, year: 1994 to 1998, counts 95-99, respectively)
Connecticut	14(2)	9(3, 99)
New York	5(1)	16(3, 96)
New Jersey	165(3)	633(3, 99)
Delaware	0	1(1, 97)
Maryland	65(1)	89(1, 98)
Florida	1250(26)	1226(25, 99)
Alabama	64(1)	68(2, 99)
Mississippi	1(1)	37(2, 98)
Texas	112(14)	265(11, 98)
Mexico		102(1994 survey, Morrison <i>et al.</i> 1994)
Panama		346(1997 survey, B. Watts, pers. comm.)
Total	1663	2344(2690 with Panama)

populations will probably be underestimates because of limited coverage of roost locations. As such, the CBC data are, in general of poorer quality than the intensive surveys. Taken together, however, CBC data suggest another 1,865 birds by summing the results of the December 1999 counts (CBC 100), and 2,344 birds in the maximum counts from the previous 5 years are used (Table 2). In both cases, more than 50% of these birds winter in Florida, with the largest counts from Cedar Key, Florida (483 birds, December 1999 CBC, Birdsource 2000). The largest variation in annual numbers comes from New Jersey where it is possible that winter weather will influence the degree to which birds move in and out of the coastal areas of this state.

Additional counts

An aerial survey of the south coast of Panama during the fall of 1997, resulted in 346 birds along 100 km of coastline (Table 2), although it is not clear whether these birds represent the nominate race *H. p. palliatus* or the Pacific race, *H. p. pitaney* (Morrison *et al. in prep.*). Little available habitat for this species exists elsewhere in the country (B. Watts pers. comm.). A January 1993 survey of the Gulf of Mexico and Caribbean coasts of Mexico yielded only 102 birds (Morrison *et al.* 1993). A combined total of all recent sources gives an estimate of 7,771 birds (8,304 with Panama and Mexico numbers

included). A combined total of all recent sources gives an estimate of 7,650 birds (8,577 with Panama and Mexico numbers included).

DISCUSSION

Estimates of population size

The total North American population of the American Oystercatcher probably numbers no more than 9,000 birds given our combined estimate from surveys and 1999 CBC's and assuming that Gulf of Mexico states of Alabama, Louisiana and Mississippi which report small numbers of wintering birds have few birds not counted during Christmas counts. This is probably a reasonable assumption given that count circles cover the majority of the coastlines of those states. Texas CBC data are also based on good coverage of coastal locations. In the case of Florida, the 1999 CBC total of 1,250 is much higher than a 1994 mid-winter shorebird count which reported a maximum of 336 birds (sum of upper ranges, Sprandel *et al.* 1997). For this state the count is based on the largest number of individual counts for any state, with good coverage along the Gulf of Mexico coast of Florida, where birds are known to concentrate. The only state north of the intensively surveyed states likely to have many more oystercatchers than reported by the CBC data is New Jersey because the counts ignore



several large inlets that are indistinguishable in structure from the four surveyed ones (P. Lemon pers. comm.). The error there could be as much as 25 and 50% in which case New Jersey could contain as many as 250 wintering birds, assuming no double counting within counts.

Only small additional numbers (< 100) are known from the Caribbean islands (Nol & Humphrey 1994). At this, it is unlikely that the North American population reaches 10,000 birds, the criterion determined to designate high conservation priority based on population size (current USCSCP) and the species should be considered a high conservation priority in all states in which it occurs.

Assuming 9,000, then the states of Florida, South Carolina and Virginia, with close to 80% of all wintering birds, are critical states for the management and persistence of this species and should be considered internationally important sites. Feeding areas for wintering oystercatchers are probably critical for maintaining populations (Goss-Custard *et al.* 1996). A detailed survey of the health of these feeding areas is needed, as well as the identification of possible adverse effects of human activities (e.g. dredging, water pollution) on winter feeding areas. As birds concentrate of relatively few roost sites, these areas also deserve protection. A plan for establishing the long-term persistence of the wintering habitat and hence the wintering population is required.

Winter versus breeding population sizes

Very little information is available on what proportion of wintering birds eventually nest in the states in which they were counted. Very few banding studies of this species have been conducted and tracking of breeding birds to wintering areas has not been conducted. Breeding populations along the Virginia Barrier Islands, not including the bay habitats such as dredge spoil islands where sizable numbers of oystercatchers also nest, were estimated at about 509 adult birds in 1999 (down from a high of 1,274 in 1984, B. Truitt pers. comm, Davis 1999), representing about 25% of the number of wintering birds, suggesting that 75% of that state's wintering birds are migrants from northern states. If a liberal estimate of 500 birds nest and remain undetected in the annual surveys in Virginia marshes and bays then 50% of the wintering population could be migrants from northern states.

In North Carolina estimated breeding populations are slightly greater than the number of wintering birds estimated in this study (600 breeding adults, Allen pers. comm, versus 567 wintering birds). Either a number of wintering birds along the intercoastal waterways and within the sounds were missed, or most breeding birds in the state also winter there with few additional birds moving in from the north. However, since average roost

size was 106 birds, and since large extrapolations were necessary because of North Carolina's expansive coastal habitat, these estimated numbers might be off considerably. If a small number of large winter roosts were overlooked, our extrapolations are much lower than actual numbers.

Numbers of breeding American Oystercatchers in the state of South Carolina were estimated (in 1998) at a minimum of 112 pairs (S. Dodd pers. comm in Davis 1999) so that the state probably contains predominantly wintering birds. In Georgia the numbers suggest that the winter population includes few migrants as the 241 adult birds including 86 breeding pairs surveyed over all of the possible nesting areas, including beaches, oyster shell mounds and dredge spoil areas, in June of 1999 (B. Winn unpubl. data) is very close to the winter estimate of 237. An additional mid-winter count of 363 in January 2000 still represents a majority of local birds, but may also include some birds that had moved south over the cold weather period immediately preceding the count date.

The winter populations of the states of Alabama, Mississippi, Louisiana and Texas are probably composed primarily of small flocks of local breeders. The large number of birds wintering along the Gulf coast of Florida probably consist of both breeders and non-breeders as the breeding population of that state is only estimated at 600 birds (A. Schnapf pers. comm. in Davis 1999).

The total number of estimated breeding individuals along the Atlantic coast and Florida is much less than the number of estimated wintering birds (2,828 breeding birds, Davis 1999) suggesting that realistic population estimates are much easier to obtain in winter than during the breeding season.

Survey follow-up

We recommend that follow-up counts for the purposes of establishing population trends should be conducted over a short period (max. two weeks) in the fall (November) when boating conditions are better than in December and January, and bird movement appears minimal. A follow-up survey is recommended for the fall of 2000 or 2001 depending on the availability of human and financial resources. If affordable, helicopter surveys appear to provide an accurate and efficient method of surveying and would forego the need for extrapolation, which may be quite inaccurate for organisms like oystercatchers with patchy spatial distributions. Fixed wing aircraft are not recommended as flocks of roosting birds can be quite dense and difficult to survey quickly.

Beach use by oystercatchers was minor and, for states



where a full beach and waterway survey was available, birds on the beaches accounted for about 10% of the total numbers. Birds on beaches were sometimes in pairs, but more often only present as single birds. Given the much greater time commitment involved in surveying beaches, we recommend adjusting total counts when based only on estuarine surveys, up by 10% but continuing to concentrate survey efforts on roosts along tidal sound areas. As oystercatchers are large visible birds, both aerial surveys and boat surveys are considered quite accurate in estimating numbers. A study designed specifically to compare the results of the two methods would be a valuable next step.

Conclusions

Comparing the population size of the American Oystercatcher in the United States with those of other shorebird species with rare, threatened or endangered status in at least one state or region (e.g. Piping Plover *Charadrius melodus*: 5,913 birds, Endangered in Great Lakes, Threatened elsewhere; Mountain Plovers *C. montanus*: 9,000; Endangered in Canada, Snowy Plovers *C. alexandrinus*: 16,000; Threatened on US Pacific Coast, Brown *et al.* 2000), suggests that the American Oystercatcher should be given official legal status as a species of concern in all states in which it occurs.

Breeding success for this species is quite low in years with high onshore winds combined with spring tides, because nests are placed close to the high water mark and frequently lost. These conditions have occurred frequently along coastal sand bar and salt marsh nesting habitats in recent years (B. Truitt pers. obs. VA, P. Leary, pers. obs., FL). The precipitous decline (> 50%) in the nesting populations of American Oystercatchers in Virginia and the Cape Romain area of South Carolina (S. Dodd pers. comm in Davis 1999) where counts have been done regularly and consistently since 1975 and 1989 respectively, as well as the precarious and vulnerable nature of the large roosts of wintering birds in the southeastern coastal states of the United States suggests that this species should be given a high profile in future bird conservation efforts. North American biologists should look closely at the model studies of the Europeans that coordinate work across country boundaries (Goss-Custard 1996) and clearly establish links between food supply and population stability for the European species.

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