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Hunting and Recreational Values of North American Waterfowl

It is almost as difficult to find individuals opposed to waterfowl conservation as it is to hear Americans speaking out against motherhood or corn on the cob. Yet, in a real sense, it has been the American tradition of unchecked population expansion, taming the wilderness, and converting prairies and marshes into cornfields that has nearly spelled disaster for some of our native waterfowl. Of a wetland area in the United States that originally covered some 127 million acres, nearly 50 million acres have already been drained and lost as waterfowl habitat. Marshes have not only been converted to farmland but also have provided land for expanding suburbs and have been covered with cement or asphalt for roads, airports, and the other hallmarks of modern civilization. All of this has been done in the hallowed name of progress, for the benefits of a greater gross national product, and in hopes of a higher collective standard of living. Unfortunately, waterfowl have had few spokesmen to decry their changing standards of living, and their gross national product can only be measured in terms of the numbers of birds that annually fly southward toward their wintering areas. These numbers, as reflected in annual harvests and changes in season lengths and bag limits, provide a measure of the health of our waterfowl resource. In recent decades that health index has often sagged alarmingly, and a few species have scarcely been able to recover from these setbacks.

Some persons might well pose the questions: "Just how important to our economy is a healthy waterfowl population? So what if one or two species might become extinct, aren't there plenty more to take their places?" It is nothing if not traditional to measure the value of things in terms of dollars, the very lodestone of American values. Thus, there are the annual license fees

and “duck stamp” costs paid by some two million hunters—and the costs of ammunition, gas, lodging, and expendable supplies that are used on every hunt. Then there are the depreciation costs on guns, clothes, vehicles, boats, decoys, and all the other special equipment on which the waterfowl hunter lavishes his care and dollars. Costs of raising and training hunting dogs, rental or lease costs for hunting areas, hunting club costs, and similar ancillary expenses all contribute to the overall economic impact of waterfowl hunting. The 1965 National Survey of Hunting and Fishing reported that the average American waterfowl hunter spends over fifty dollars per year on his sport. With more than two million waterfowl hunters in the United States and Canada, at least a hundred million dollars per year would be a minimum economic value of waterfowl hunting.

What are the immediate returns to hunters for their investments? Putting aside the esthetic aspects of hunting—the memorable sunrises, the dances of phragmites on a distant horizon, the self-satisfaction of a difficult shot and a “clean” kill—the sheer poundage of the waterfowl harvest is enormous. Close to twenty million ducks and geese are shot each year by hunters in the United States and Canada (Table 4). This harvest represents some fifty million

TABLE 4
ESTIMATED AVERAGE ANNUAL HARVESTS,
CANADA AND THE UNITED STATES

(indicated in 1,000s of birds)

	<i>Canada</i> ¹	<i>Alaska</i> ²	<i>Rest of U.S.</i> ³	<i>Estimated Total Kill</i>	<i>Total Kill Index</i> ⁴
Geese					
Snow and Blue Goose	27.4	tr.	319.2	345.6	13
Ross Goose	2.5	—	.6	3.1	28
White-fronted Goose	41.7	.4	102.4	144.5	17
Canada Goose	147.8	7.8	578	733.6	5
Brant Goose	1.5	.6	34.8	36.9	24
Ducks					
Wood Duck	115	—	589.6	704.6	6
American Wigeon	178	9.1	825.8	1,012.9	4
Gadwall	77	.8	483.6	561.4	8
Green-winged Teal	287	11	1,124.4	1,422.4	2
Mallard	1,030	16.3	3,360	4,406.3	1
“Mottled Duck” ⁵	—	—	90.2	90.2	21
Black Duck	276	—	366.4	642.4	7

TABLE 4 continued

	<i>Canada</i> ¹	<i>Alaska</i> ²	<i>Rest of U.S.</i> ³	<i>Estimated Total Kill</i>	<i>Total Kill Index</i> ⁴
Pintail	194	14.5	990.4	1,198.9	3
Blue-winged & Cinnamon Teal	109	.2	302.2	411.4	11
Shoveler	29.6	3.7	346.0	379.3	12
Canvasback	14.8	.1	123.6	138.5	18
Redhead	39.8	—	162.4	202.2	14
Ring-necked Duck	84	.1	402.6	486.7	9
Lesser Scaup	68	1.0	371.6	440.6	10
Greater Scaup	50.7	1.1	76.2	128.0	19
Eiders	10.2	—	4.9	15.1	26
Oldsquaw	6.4	.2	6.5	13.1	27
Scoters	68.5	.7	49.8	119.0	20
Bufflehead	36.4	1.3	112.6	150.3	16
Goldeneyes	70	2.6	82.8	155.4	15
Hooded Merganser	35.9	—	42.8	78.7	22
Other Mergansers	20.0	.5	15.6	36.1	25
Ruddy Duck	3.4	—	52.6	56.0	23
Total Retrieved Kill	3,025	72	11,019.5	14,116.5	—
Estimated Unretrieved Kill (38%)	1,149	27	4,187.4	5,364.2	—
Estimated Total Kill	4,174	99	15,206.9	19,480.7	—
Estimated Total Hunters	385.6	11.1	1,724.2	2,120.9	—
Estimated Kill per Hunter	10.8	8.9	8.8	9.2	—

1. Based largely on 1968 season (Tener and Loughrey, 1970), except that figures for minor species and sea ducks are estimates of author, based on data of Benson (1968, 1969) for 1967 and 1968 seasons. Excludes non-sport kill by natives.

2. Average of two seasons (1967 and 1968). Excludes non-sport kill by native Alaskans.

3. Average of four seasons (1964 through 1968).

4. Ranking according to relative estimated total kill, from 1 (high) to 28 (low).

5. Includes mottled and Florida mallards.

pounds of fresh meat, or approximately ten birds per hunter. Average season kills per hunter are of little significance, since the vast majority of persons who buy “duck stamps” take only a few birds, and perhaps as much as 80 percent of the annual kill may be accounted for by only about 20 percent of the hunting population. Regardless of the statistical problems of a “typical” season kill for an “average” hunter, it is evident that at least four species (mallard, green-winged teal, pintail, and American wigeon) have annual harvests of a million or more birds. Although these figures seem high, the

species concerned are ones that can tolerate high harvest rates. They all mature rapidly, have fairly large clutch sizes, often will renest following early nest failures, and can breed in a diversity of habitats and climates.

Probably much more serious than these harvest rates are the much lower ones of such species as redheads, canvasbacks, and ruddy ducks. These birds nest in prairie marshes that exhibit rather specific vegetative characteristics and stable water levels. The females are usually ineffective breeders or even nonbreeders during their first year of life, and nest desertion rates are often high, because of water fluctuations or nest parasitism. Additionally, female redheads and canvasbacks are much more vulnerable than males to hunting mortality, a factor which tends to exaggerate a normally unbalanced sex ratio and to reduce reproductive efficiency. Hunting thus increases the population stress on species which are the first to suffer from drainage or other breeding habitat disturbances, or which winter in restricted areas that are often subjected to oil pollution or other man-made disturbances.

North America has already witnessed the irrevocable extinction of several game birds, including the passenger pigeon, the heath hen, and the Labrador duck. In the case of the Labrador duck, the species was virtually extinct before biologists even recognized that it was in serious danger and before its nests or young had even been found. Some reputed Labrador duck eggs do exist but lack sufficient documentation, and no biologist was sufficiently foresighted as to save a complete skeleton of the species. Perhaps we may excuse this case of early extinction as an apparent example of death by natural causes, or at least one in which man's tampering with the environment played no obvious role. The breeding grounds, being undiscovered, remained undisturbed, and the small numbers of birds taken during the hunting season could not have been a significant factor in extinction.

Now, nearly a century later, the breeding grounds of all the North American waterfowl have been found. More importantly, even those species breeding on the remote arctic tundra may soon feel the effects of oil or mineral exploration. There are also the possibilities of massive oil spills on restricted wintering or breeding coastlines, of reproductive failures brought on by pesticides, or of poisoning by heavy metal pollutants. The worlds of man and waterfowl are ever more closely linked with one another, and the geese that once bred in unknown lands "beyond the north wind" now carry with them the mercury that they may have swallowed with wheat on Dakota grainfields and the DDT or other pesticides that they ingested while wintering on the delta of the lower Mississippi. In some cases, the tissue levels of these poisons may even render the birds unfit for human consumption, and the hunters' hard-sought trophies then become useless piles of flesh and feathers, the

ultimate degradation of animals that once flew free and wild, transient spirits, unfettered and untamed by man except in death.

If the economic values of North American waterfowl to hunters can be measured in terms of annual harvests, how then does one measure their values to bird watchers or bird photographers? There is no way of knowing exactly how many people fit those categories, but it has been estimated that there are over eight million bird watchers in the United States and over three million people who photograph birds or wildlife. Thus, perhaps five times as many people gain direct pleasures from live waterfowl as hunt them for sport, and the dollars they spend on travel, binoculars, cameras, film, lenses, and related items are no doubt at least as great as the hunters' expenditures.

Of course one need not spend money to gain esthetic pleasures and values from waterfowl. Are not the unexpected and unsought pleasures often the most memorable ones? What are the values to a youngster, who may not know a canvasback from a Canada goose, when he sees a skein of waterfowl etched against an autumn sky? And does not the flock of geese that is lost to hearing and view by one person enter the sensate world of another in the distance, thus linking the two by a common bond? What scene can so capture and stir the imagination as a flock of wild swans? What sounds are as haunting as those of wild geese overhead on a foggy night? What sight is more compelling than that of a female duck with a brood of young paddling dutifully behind her?

Perhaps the esthetic values of waterfowl must be viewed in two somewhat opposing ways. Even a common species can provide an impressive spectacle if seen in large enough numbers; the massive flocks of migrating snow geese provide testimony to that opinion. Further, by virtue of its very abundance, the common species is likely to be seen by a large percentage of the bird-watching or nature-oriented population. It is, in short, a "reliable" species for the daily checklists of many people and may be looked upon as an old and close friend with whom every encounter is a renewed pleasure. Alternatively, there are the special rewards of seeing a rare species or one associated with a highly limited habitat or geographic area. The "rarity values" of these species are in inverse relation to the ease or likelihood of seeing them on a given day. Although it is unlikely that they will ever be seen in such numbers as to impress the uninformed observer, a single sighting becomes an event to be remembered for years, if not for a lifetime. This, then, is the esthetic value of a tufted duck, a European teal, or a masked duck, each of which is a species to be appreciated by the dedicated bird watcher without reference to its beauty or lack thereof.

Using these criteria—either the relative abundance as an index to the relative recreational value of a waterfowl species, or relative infrequency of

occurrence as an index to a species' rarity—it is possible to establish some esthetic values of the various waterfowl species. The annual Audubon Christmas counts provide a convenient means of assessing the general relationship between the continental distribution of bird watchers and the winter distribution patterns of waterfowl. By using these winter counts, even the arctic-breeding species may potentially be included in the calculations, and most of the birds are by then in their finest plumages. During the period 1954 to 1962 these counts were annually summarized not only as to cumulative total numbers of individual birds seen per species but also as to the numbers of counting points in which each species was observed. The former figure provides a useful means of judging the relative winter abundance, or "recreation index," of each species, while the latter provides an indication of the species' winter distribution relative to the distribution of bird watchers. Thus, the fewer total stations at which a species was seen during this nine-year period, the greater the species' rarity index. The smallest total numbers of birds reported during this period provides an alternate means of judging the rarity index.

With these criteria in mind, an analysis (Table 5) of the recreational and rarity values of North American waterfowl can be made. The results indicate

TABLE 5
SUMMARY OF AUDUBON CHRISTMAS COUNTS, 1954–1962

	<i>Average Total Count</i>	<i>Recreation Index</i>	<i>Cumulative Total Stations</i>	<i>Rarity Index</i>
Fulvous Whistling Duck	10.8	42 (Tie)	16	6
Black-bellied Whistling Duck	30.3	39	8	4
Trumpeter Swan	10.8	42 (Tie)	9	5
Whistling Swan	26,575	19	302	18
Mute Swan	796.5	31	237	17
Snow and Blue Goose	110,121	7	459 ¹	21
Ross Goose	334	35	19	7
White-fronted Goose	11,677	26	156	14
Emperor Goose	70	37	1	1 (Tie)
Canada Goose	298,963	3	1,600	38
Brant Goose	142,768	6	208	16
Wood Duck	1,397	30	664	24
American Wigeon	167,967	4	1,555	36
European Wigeon	12.3	41	71	9
Gadwall	15,174	24	972	29

TABLE 5 continued

	<i>Average Total Count</i>	<i>Recreation Index</i>	<i>Cumulative Total Stations</i>	<i>Rarity Index</i>
Green-winged Teal	44,682	13	1,314	34
"Common Teal" ²	.5	43	5	3
Mallard	1,039,060	1	3,488	44
"Mottled Duck" ³	539	13	145	13
Black Duck	159,587	5	2,326	43
Pintail	429,337	2	1,717	40
Blue-winged Teal	3,463	29	401	19
Cinnamon Teal	368	34	137	12
Shoveler	29,142	17	886	27
Canvasback	77,282	11	1,377	35
Redhead	94,475	8	897	28
Ring-necked Duck	20,807	21	1,269	32
Lesser Scaup	81,661	10	1,606	39
Greater Scaup	90,005	9	851	26
Common Eider	32,640	16	159	15
King Eider	16.5	40	53	8
Steller Eider	67	38	3	2
Harlequin Duck	179	36	93	10
Oldsquaw	17,189	22	689	25
Black Scoter	6,345	27	449	20
Surf Scoter	28,164	18	498	22
White-winged Scoter	21,386	20	596	23
Bufflehead	15,190	23	1,559	37
Barrow Goldeneye	566	32	124	11
Common Goldeneye	42,212	14	2,311	42
Hooded Merganser	3,804	28	1,185	30
Red-breasted Merganser	13,988	25	1,197	31
Common Merganser	37,248	15	1,857	41
Ruddy Duck	54,209	12	1,274	33
Masked Duck	.2	44	1	1 (Tie)

1. Tallied for "snow goose" only.
2. European green-winged teal.
3. Includes mottled and Florida mallards.

that the five most important waterfowl in terms of recreational value to bird watchers are the mallard, pintail, Canada goose, American wigeon, and black duck. All of these were seen in numbers averaging in excess of 150,000 birds per year on Christmas counts. Species that were seen at an average of at least 200 stations per year include the mallard, black duck, common goldeneye, and

common merganser. Thus, by both measurements, the mallard and black duck provide great recreational value to America's winter bird watchers. On the other hand, species seen in the smallest total numbers per year were the masked duck, European or "common" teal, fulvous whistling duck, trumpeter swan, and European wigeon. Two of these, the teal and the wigeon, are accidental visitors from Europe or Asia, while the others are native species with limited wintering distributions. If a rarity index on the basis of numbers of stations reporting the species is established, the four rarest species are the masked duck, emperor goose, Steller eider, and European teal. Even rarer than these would be the spectacled eider, which has made only one appearance on the Christmas counts, and that a single individual. The tufted duck has also appeared on Christmas counts several times in recent years.

Whatever values we place on them, we must recognize the special relationship we share with our waterfowl resource. They were not created for us, but only exist with us, traversing the same continent, drinking the same water, breathing the same air. They provide an historic link with our American past, when our pioneering ancestors' survival sometimes depended on them. They also confront us with a fearful vision of the future we have shaped for us and them, as when they are caught in floating deathtraps of crude oil or succumb to pesticide paroxysms. They are uncertain refugees from another time and a different America, when smoke on the horizon meant an Indian campground rather than a factory and when the sound of distant thunder was caused by bison herds instead of bulldozers and jackhammers.

We cannot expect to learn directly from or communicate with waterfowl; they speak separate languages, hear different voices, know other sensory worlds. They transcend our own perceptions, make mockery of our national boundaries, ignore our flyway concepts. They have their own innate maps, calendars, and compasses, each older and more remarkable than our own. We can only delight in their flying skills, marvel at their regular and precise movements across our continent, take example from their persistence in the face of repeated disaster. They are a microcosm of nature, of violent death and abundant rebirth, of untrammelled beauty and instinctive grace. We should be content to ask no more of them than that they simply exist, and we can hope for no more than that our children might know and enjoy them as we do.