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rejoices that the dandelion survives in spite of my efforts.

I believe, without looking for examples which I believe are many, that human intrusion will bring about iatrogenic population disorders worse than the problems they are meant to cure. We should be spectators, and enjoy the spectacle.

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This retort is intended as a response to Pete Myers's essay on "Gulls are what gulls eat" Volume 43 No.2.

Although I find myself in basic agreement with the general theme of Myers's essay on gulls, ravens, etc. (Vol 43, pp. 207-209), that control programs must incorporate a thorough understanding of the system and the species involved, it is my opinion that his article serves to reinforce a number of inaccurate stereotypes regarding gulls and their ecology. First, it is by no means certain that the "increase" in gull numbers in the Northeast is the result of gulls feeding on garbage dumps. In fact, even the putative increase is in question to some degree. Gulls were almost certainly abundant coastal birds until they were extensively persecuted (eggs, chicks, and even adults as food, and by feather hunters) during the 18th and 19th centuries. Many thousands of birds were killed and many more eggs were taken. In many areas, gulls may simply be returning to pre-exploitation population sizes.

With respect to increases in gull numbers being the result of having garbage available to them as food, recent evidence from detailed studies of breeding performance of gulls in relation to diet choice indicates that gulls that feed primarily on garbage have very low rates of both egg-hatching and chick survival. Gull chicks reared on a diet of refuse show numerous growth abnormalities, and probably cannot survive to breed. As a consequence, birds feeding on garbage are probably making only minor contributions to population growth.

Most gulls that actually do feed on garbage dumps are either juveniles of

the large marine gulls (Herring, Western, Glaucous-winged), or adults of the smaller inland species (Ring-billed, California). Even these birds represent only a small fraction of the total numbers. For example, in the Northeast, estimates of all gulls feeding on dumps totals only 200,000 or so, whereas more than a million gulls occur offshore. As a consequence, the idea that gulls owe their increases to the presence of garbage dumps is suspect at best.

On a related theme is the implication that gulls are responsible for the demise of populations of other seabirds in the Northeast as a result of their increases in numbers. This is also a popular, but flawed, concept. Gulls are opportunists (as their occurrence on dumps attests), and will take eggs and chicks of other species when these are left unguarded by adults, but the question we must ask ourselves is "How does it occur that these eggs and chicks are unguarded?" Terns are very susceptible to human disturbance and will often fly up off their nests when humans (and their dogs) are at a distance from their colonies. In addition, terns will desert colonies if they are regularly disturbed. Similarly, the only study on puffins that suggests that gulls have a major ad-

verse impact on puffin breeding success was on a highly disturbed colony. Similar studies on colonies where puffins were less disturbed have not yielded any evidence of serious impact by gulls. Gulls and terns (and puffins) have coexisted for millions of years without any of the species being threatened with extinction. Therefore, it might seem more appropriate for investigators concerned with preserving terns and puffins to concentrate on minimizing human impact (including perhaps their own), rather than working at perhaps misguided efforts at gull control, and allow nature to take its course.

I suspect that these arguments of mine are within the theme that Myers advanced in his essay. However, since the evidence that increases in gull numbers are the result of anything other than a recovery from persecution are arguable at best, and the impact of gulls on other seabird populations may be minimal without the mediating effect of human disturbance, let me (in the spirit of Myers' essay) urge caution on those who advocate gull control programs until the ecological dynamics involved are well understood.

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