A NEW VIEW OF REGIONAL ENDANGERED SPECIES CONSERVATION: RESPONSE TO ASKINS

ROBERT J. CRAIG

Bird Conservation Research, Inc.
90 Liberty Highway
Putnam, CT 06260

Abstract. We are unable as conservationists to respond successfully to every endangered species crisis. Observation of endangered species catastrophes have led to the conclusion that, with respect to the natural features of our landscape: 1) entire systems can be lost very rapidly, 2) there are unlikely to be the resources to save everything, and 3) in trying to save everything, we may instead save nothing. Advocated instead are efforts directed at saving *something*. One key element in developing a conservation approach for regionally endangered species will be not to dissipate finite conservation capabilities into areas that yield little significant result. With limited resources, available conservation assets should be directed to projects of maximum sustainable continental benefit. This is a radical concept: a business model for conservation; one that emphasizes strengths and eliminates unprofitable ventures.

In 1917, my father liked to play in the apple orchards of rural Newark, New Jersey. Just short carriage rides away from there were the vast Newark Meadows, where scientists of the day went to study marsh bird-life (Abbot 1907). By the early 1950s, when I first remember the area, the farms had disappeared, and the Newark Meadows were beneath Newark International Airport. The local ponds where my mother had once swum were drained, the streams that fed them were encased in cement tunnels, and not one parcel of natural landscape remained. Even the hardiest of native wildlife had all but abandoned a region where only a generation earlier they had been abundant. Years later and a world away in the tropical Pacific, I would similarly observe native birds disappearing as rapidly as if they were snow on a spring morning. Such observations, particularly those from the Pacific, are my starting point for this discussion.

Long isolated populations of island birds with few disease, competitive or predator defenses have been particularly vulnerable to endangerment and subsequent extinction (Steadman and Olson 1985, Temple 1985). Indeed, conservationists routinely deal with catastrophic endangered species crises on islands (e.g., Scott et al 1986, Savidge 1987, Craig and Taisacan 1994). During a 1993 visit to the Hawaiian island of Kauai, an island that even as recently as the 1970s had suffered no historic bird extinctions, I learned that the Kauai O'o (*Moho braccatus*) and Kauai O'u (*Psittirostra psittacea)* had vanished, the Kama'o (*Myadestes myadestinus*) appeared to have become extinct just weeks before my arrival, the Puaiohi (*M. palmeri*) had declined to perhaps dozens of individuals, and only a few Nukupu'u (*Hemignathus lucidus hanapepee*) still survived (Scott et al 1986, Conant et al. 1998. J. Jacobi pers. comm.). I observed that even the "common" native forest birds were present at only a fraction of the high densities found on other Pacific islands (Engbring et al. 1986, Craig 1996).

Conservation efforts on behalf of such endangered species on Kauai were at that point largely limited to periodic surveys—officiating at their extinction—not through any lack of concern or effort on behalf of native birds, which has indeed been extensive (e.g., Mountainspring and Scott 1985, van Riper III et al. 1986, Conant et al. 1998), but because little more was practical. So many concurrent catastrophes had befallen the native avifauna and their habitats on every major Hawaiian island (Scott et. al 1986, Scott et al. 1988) that certain species for which there was virtually no hope were simply being let go: ecological triage decisions for a long list of dying patients. One had the sense that conservationists in Hawaii had their collective thumbs in the hole of a crumbling dike.

Based on this perspective of our inability as conservationists to respond successfully to every endangered species crisis, even when those species being lost are among the quintessential examples of allopatric speciation, adaptive radiation and coevolution (Mayr 1963), I have reconsidered my earlier views on regional endangered species conservation (Dowhan and Craig 1976, Craig 1979), as well as on many of the prevailing views of regional bird conservation (e.g. Vickery and Dunwiddie 1997, Askins 2000). Such a perspective has led me to observe

that, with respect to the natural features of our landscape: 1) entire systems can be lost very rapidly, 2) there are unlikely to be the resources to save everything, and 3) in trying to save everything, I fear we may instead save nothing.

As in Craig (2002), the northeastern United States serves as a case study. New Jersey, for example, projects that without an aggressive policy of open space purchase, within 20 years much of its remaining unprotected land will disappear (Burchell et al. 2000). Similarly, census figures for Connecticut show that rural towns are sustaining rapid growth. In one of the last bastions of extensive open space, the state's northeastern corner, a number of small towns grew 15−30% in 10 years (Connecticut Office of Policy and Management 2002). In Massachusetts, the pace of land development is further reported as far outstripping population growth (Massachusetts Natural Heritage and Endangered Species Program 2001). As with one generation previous, one generation more is likely to experience a revolution in regional landscapes. If there is to be anything viable left of our natural landscapes and the species they support, what strategies might be employed to accomplish this end?

One key element will be not to dissipate finite conservation capabilities into areas that yield little significant result. Conservation action based solely on arbitrary state boundaries and not key continental issues is likely to be inconsequential. With limited resources available for conservation, efforts should be directed to projects of maximum sustainable continental benefit. Only 0.3% of the Connecticut budget (Rowland 2002), and 0.8% of the United States budget (United States 1998), for example, are applied to environmental protection. I advocate instead trying to save *something*. This is a radical concept: a business model for conservation; one that emphasizes strengths and eliminates unprofitable ventures.

How might we develop a regional focus for conservation efforts? Within the field of endangered species conservation, the view traditionally has been that all elements of the historically known regional landscape, and particularly the regionally rare species they support, are objects of conservation concern (e.g., Dowhan and Craig 1976, Vickery and Dunwiddie 1997, Askins 2000). In a perfect and academic world, such a view is a largely reasonable one. However, with burgeoning human populations, competing perspectives on land use and rapidly shrinking natural areas, choices must be made.

We may assume that, in addition to forest and tidal wetlands, the landscape of the Northeast at the time of first European contact also included grasslands, parkland forest, savannah, scrublands and other successional habitats (Delcourt and Delcourt 2000, Askins 2000). However, as I have already argued (Craig 2002), due to anthropogenic effects and dynamic, rapidly altering climatic and geographic conditions after the most recent glaciation, it is meaningless to establish a historical baseline against which to gauge present regional endangered species policy. What matters for present conservation is present conditions.

Although the Northeast once may have been a mosaic of natural habitats, the equation is now changed. The present landscape contains a substantial and growing area of human habitation. Conditions that favored the appearance of certain habitats are forever gone. Should we expect, for example, that Native Americans will ever again carry out large scale burning of the landscape? Similarly, the prospect that northeastern beavers (*Castor canadensis)* will be permitted to flood areas vast enough to support meaningfully certain grassland birds (prairie species associated with dry uplands (e.g., Grasshopper Sparrow, *Ammodramus savannarum*; Vesper Sparrow, *Pooeceetes graminius*, are unlikely to find such habitats suitable) seems remote. Moreover, we must question whether the amount of remaining natural landscape will be adequate to support viable examples of every habitat type.

Instead of every region attempting to protect every habitat and its associated species, another strategy is for regions to protect those habitats for which there is a realistic chance to produce a lasting continental result. With the vast majority of prairie bird populations being in the Midwest, for example, the place to direct conservation efforts on behalf of prairie species is there and not the Northeast. Focusing on such species in the Northeast, where they are locally rare but often continentally common, produces little contribution to the conservation of our continent's avifauna.

The Northeast is more appropriately a place to focus efforts on behalf of forest bird species. As I have already documented (Craig 2002), Eastern Deciduous Forest is under siege in much of its range, but in the Northeast extensive areas of forest have regrown and matured. The window of opportunity is now briefly open for this region to perform a service with continental impact: to protect extensive enough examples of this system so that the bird species they contain may exist at population levels sufficient to promote their indefinite survival.

What I instead observe in one of the last remaining strongholds of extensive forest between Boston and Washington, northeastern Connecticut (Alerich 1999, Rosenberg 1999), is dissipation of efforts on state land, on federal land, and by local land trusts into producing habitat diversity (see also Milne 1995), and perpetuating the very type of forest fragmentation that elsewhere is widely documented as destructive for forest bird communities (e.g. Robinson et al. 1995,

Robinson 1998, Breininger 1999, Roberts and Norment 1999). Local land managers presently may be lulled by the abundance of forest, but this abundance is likely to be transitory as this region rapidly develops. What is needed is a landscape level rather than local perspective for forest conservation (Aber et al. 2000).

For land to be set aside as forest, an economic incentive for doing so is likely to be a major plus. In this case, the use of forest products through selective logging also appears to satisfy some of the concerns of the traditional conservation mindset. During the past year, I have gathered data on the density and distribution of forest birds over broad geographic areas of southern New England. An important observation from these investigations is that selective logging opens forests to many of those bird species (e.g., Chestnut-sided Warbler, *Dendroica pensylvanica*; American Redstart, *Setophaga ruticilla*; Eastern Towhee, *Pipilo erythropthalmus*) associated with successional environments. Regional population declines in some of these species have been of concern to conservationists (e.g., Hagen 1993, Askins 2000). Moreover, particular types of selective logging can yield landscapes that remain inhabited by most forest interior inhabitants (Craig unpubl. data) and appear less damaging to forest communities than agricultural/ urban forest fragmentation (Rosenberg et al. 1999).

Managed forests substitute neither for undisturbed forests in supporting forest bird diversity, nor for fully simulating the effects of natural disturbance (Aber et al. 2000). Some bird species like the Pileated Woodpecker (*Dryocopus pileatus*) appear, in fact, to be largely restricted to extensive mature tracts in the Northeast (Craig unpubl. data). However, selective logging as part of a management plan can be a useful tool when used creatively (Aber et al. 2000). The key here is that an economic incentive is provided for keeping indefinitely extensive tracts in forest.

What of arguments that eastern subspecies of prairie birds provide evidence for a long history of these species in the East and, hence, for conserving eastern populations of such species? A full analysis of population genetics and genetic divergence is best left to another volume, although some initial consideration is appropriate here.

Arguments about the importance of subspecies are based on the assumption that genetically distinct populations and perhaps incipient species are being preserved (Askins 2000). However, closer analysis of subspecific differences often has shown that such designations are invalid, and instead represent clinal or inconsistent variation (e.g., Moen 1991, Thompson et al. 1992, Wood 1992). Moreover, the morphological differentiation can occur rapidly (Johnston and Selander1964, Aldrich and Weske 1978), with translocated populations of island species showing differences from parental populations within few generations (Conant 1988).

In mainland species that expanded their ranges rapidly during post-glacial times, the effects of selection on gene frequencies can produce local morphological variants in the absence of DNA differentiation (Greenberg et al. 1998). Other local differences, such as behavioral alteration, can be influenced by a host of local conditions in the absence of any likely genetic differentiation. I have consistently observed, for example, that Song Sparrows (*Melospiza melodia*) nesting at the edge of salt marshes sing more like their Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*) neighbors than they do when nesting only several hundred meters away.

With such considerations in mind, we cannot always presume that local forms are of conservation importance. Certainly, substantive cases can be made for conservation of certain distinct populations (Johnson and Martin 1988, Ouellet 1993, Rising and Avise 1993), but how much conservation importance should we assign in situations where differences may amount to little more than minor local variants?

Even subtle population differences may be adaptive (Greenberg et al. 1998), but some realistic assessment of the importance of such variation should precede a major investment in conservation action. We run the risk, by focusing on details of plumage and measurements, of losing sight of major continental conservation issues. The catastrophic and continuing loss of North American wetlands and associated range contractions and population collapses of entire species (Craig 2002) would seem to make concern over local color variants pale by comparison. We also must weigh what is practical: will we lose species by focusing attention on nominal subspecies; by focusing on small versus large-scale issues?

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