

regulations in both countries are subject to annual review and revision. Therefore, we find no significant differences in trumpeter swan management between Canada and the United States within the meaning of our DPS policy.

In Canada, the trumpeter swan was listed as a vulnerable species in 1978 (Mackay 1978), but the species was moved to the not-at-risk category after re-examination in 1996 (Committee on the Status of Endangered Wildlife in Canada 2002). The species is listed as a vulnerable species in Alberta (Government of Alberta 2002), which means that without management and protection, the species could become threatened or endangered *within the province* (emphasis added). However, management actions to enhance trumpeter swan abundance and distribution in Alberta are the same as those in the rest of Canada and the Pacific flyway, as discussed above.

Trumpeter swans and tundra swans are both large white birds with black bills; the two are extremely difficult to distinguish from each other at a distance. Both species can occur in the same area during some parts of the year. Since the 1960s we have sanctioned hunting of tundra swans (*Cygnus columbianus*) under the provisions of the Migratory Bird Treaty Act (MBTA). Prior to 1995, season lengths for tundra swans were quite long (approximately 100 days); the amount of area open to hunting was large (essentially the entire State of Utah and areas of high swan use in Nevada and Montana). Illegal harvest of trumpeter swans during tundra swan hunting seasons occurred, probably by accident resulting from misidentification. The degree of take was unknown because no monitoring of species-specific swan harvests was conducted.

The RMP has been increasing at an average annual rate of 4.6 percent since 1968. The low rate of expansion of trumpeter swans into new wintering areas is believed by managers to limit further improvement of the status of the species (Subcommittee on Rocky Mountain Trumpeter Swans 1998). The Pacific Flyway's subcommittee on Rocky Mountain Trumpeter Swans determined that translocation of trumpeter swans to new wintering locations was a possible means of expanding the wintering range of the swans. Some of the Subcommittee members from States with potentially suitable wintering areas for translocated birds would not agree to relocations unless tundra swan hunters who mistakenly shot a trumpeter swan during the general swan season were

relieved of liability under the MBTA (U.S. Department of the Interior 2001).

Therefore, to enhance the potential for trumpeter swan range expansion and limit the likely but unknown amount of harvest of trumpeter swans, several modifications to swan seasons were implemented in 1995. First, the area open to swan hunting was greatly reduced, and in Utah (where most swans were harvested) the area was restricted to only portions of six counties in the northwest corner of the State. The season ending date was changed from late January to early December, thus reducing the season length by 40 percent, in order to reduce the likelihood of sport-hunting mortality for trumpeter swans that may migrate into the hunt areas when more-northerly wetlands in the Tri-State Area freeze. We included provisions for a limited take (quotas) of trumpeter swans in Utah (15 individuals) and Nevada (5 individuals) to protect hunters from criminal liability if they accidentally shoot a trumpeter swan, because it often is not possible for hunters to distinguish the two species from each other in the field. If the quota was reached in a particular state, all swan hunting would be closed in that State for the remainder of the season. Finally, monitoring of swan harvest was intensified to enhance detection of trumpeter swans taken during hunts. In 2000, the area open to swan hunting in Utah was reduced even further, and the quota was reduced to 10 individuals (U.S. Department of the Interior 2001). There is no indication that the harvest serves as a threat to the continued health of either the Rocky Mountain trumpeter swan population or the Tri-State Area flock (see Table 1) and, therefore, the take is not significant to the conservation of the taxon within the meaning of section 4(a)(1)(D) of the Act.

Although the available evidence does not demonstrate that the Tri-State flock is discrete under the DPS policy, this flock could potentially be considered to be physically separated to some degree from the rest of the RMP during the breeding season. Further, our DPS policy does not require absolute reproductive isolation as a prerequisite to recognizing a DPS. Therefore, we have taken the further step of considering the biological and ecological significance of the Tri-State Area flock in light of Congressional guidance that the authority to list DPSs be used "sparingly" while encouraging the conservation of genetic diversity. In carrying out this examination, we consider available scientific evidence of the discrete population segment's

importance to the taxon to which it belongs.

Significance—Our DPS policy provides several examples of the types of information that may demonstrate the significance of a population segment to the remainder of its taxon, including: (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that the discrete population segment differs markedly from other population segments in its genetic characteristics; (3) evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; and (4) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon. While significance is not necessarily limited to these examples, we began by considering each example with respect to the Tri-State Area flock.

(1) *Ecological setting*—The petitioners allege that the Tri-State Area flock is an important remnant population of trumpeter swans in the lower 48 States and, therefore, meets the significance criterion of the DPS policy. Tri-state swans utilize wetland habitats in the region that provide requisite feeding, resting, nesting and brood rearing habitats. Trumpeters breed in relatively small, shallow wetlands at a wide range of elevations from just above sea-level to montane areas in North America. The fact that trumpeter swans breed in suitable wetlands in a variety of geographically diverse settings does not suggest that the Tri-State Area flock is likely to represent a significant resource in terms of the overall welfare of the species. The higher elevation, montane wetlands appear to provide more marginal breeding habitat for swans because of the shorter nesting and brooding season compared to wetlands at lower elevations.

(2) *Genetic characteristics*—No evidence exists to indicate that the Tri-State swans differ markedly from other trumpeter swans genetically.

The Tri-State birds exhibit no morphological differences from other trumpeter swans in North America (Gale *et al.* 1987). Several studies have been conducted to investigate genetic similarities among different groups of trumpeter swans nesting in North America (Barrett and Vyse 1982, Marsolais and White 1997, Pelizza, unpub. ms.). However, to date only one of those studies has been accepted for publication in a peer-reviewed professional journal. Barrett and Vyse (1982) compared blood proteins among