

the WCT subspecies under the Act is whether fish in those populations conform morphologically to the scientific taxonomic description of the WCT subspecies. As noted previously, natural populations conforming morphologically to the scientific taxonomic description of WCT are presumed to express the behavioral, ecological, and life-history characteristics of WCT native to the geographic areas where those populations occur.

The Service acknowledges that molecular genetic data also can be very useful for guiding these decisions regarding inclusion or exclusion of particular populations from the WCT subspecies under the Act. For example, on the basis of data described previously in this section, our general conclusion is that natural populations conforming morphologically to the scientific taxonomic description of WCT may have up to 20 percent of their genes derived from rainbow trout or YCT. Consequently, for populations for which molecular genetic data may be the only data available, populations with less than 20 percent introgression will be considered WCT under the Act, whereas populations with more than 20 percent introgression will generally be excluded from the WCT subspecies. However, such decisions involving possible inclusion or exclusion will need to consider other potentially important characteristics of the populations, including the ecological setting, geographic extent of the introgression across the population's range, and whether rainbow (or redband) trout are naturally sympatric with WCT in the particular region under consideration.

The Service shall evaluate natural populations for which no morphological or genetic data exist on a case-by-case basis considering their geographic relationship to natural populations for which such data do exist and any other available information pertinent to those evaluations (e.g., ecological setting, degree of geographic isolation, and historical stocking records of nonnative trout species).

The species criteria described above are consistent with the best scientific and commercial data available because they are based on: (a) The criteria by which taxonomic species of fish are recognized scientifically, and (b) the biological relationship between those taxonomic criteria and levels of genetic introgression detected by molecular genetic methods in natural populations of WCT. Those criteria exclude from the WCT subspecies considered for listing genetically introgressed populations and individual fish that do not conform

morphologically to the scientific taxonomic description of the subspecies.

These criteria are further justified for this subspecies because: (a) There are no generally applicable standards for the extent of hybridization considered acceptable under the Act; (b) decisions regarding status of WCT under the Act must be made for the entire subspecies and its component populations (see Distinct Population Segments section); (c) in most cases, the taxonomic classification of extant WCT has been based on the pattern of spots on the fish's body and the professional evaluations and experiences of fishery biologists who examined the fish in the field (see also Marnell *et al.* 1987); and (d) spotting pattern was chief among the morphological characteristics diagnostic of the type specimens of WCT.

Our approach further acknowledges that a significant proportion of the genetic resources associated with WCT throughout its native geographic range may be represented by populations with low-frequency genes from other taxa (e.g., rainbow trout) detectable only by molecular genetic methods. Such populations, if they conform morphologically to the scientific taxonomic description of WCT, are considered part of the WCT subspecies under the Act. As noted previously, individual fish or populations conforming to the scientific taxonomic description of WCT shall not be considered a threat to the continued existence of the subspecies.

Conversely, we will consider genetically introgressed populations not classified as WCT as potential hybridization threats to the WCT subspecies. By definition, these latter populations do not conform morphologically to the scientific taxonomic description of WCT, or—in the absence of morphological data—we would expect them to not conform morphologically to WCT based on the level of introgression detected by a molecular genetic test or other available information.

As a result, the Service must determine which natural populations represent potential hybridization “threats” to the future existence of the WCT subspecies and which populations represent potential genetic resources of the subspecies itself. The criteria we use to make such decisions must not only be consistent with previous Service rulings dealing with “hybrids” under the Act, but decisions resulting from those criteria also must be consistent with the intent and purpose of the Act itself. The Service has concluded that, in such situations, the intent and purpose of the

Act is to be inclusionary, not exclusionary. Consequently, any natural population conforming to the scientific taxonomic description of WCT, as conditioned by the criteria stated previously, will be considered WCT under the Act. The Service also has concluded that alternative approaches would either be arbitrary and capricious (e.g., ≥ 90 percent genetic “purity” required for inclusion) or inconsistent with the intent and purpose of the Act (e.g., 100 percent genetic “purity” required for inclusion). For example, the best scientific and commercial data available indicate that WCT populations with 1 percent to 20 percent of their genes derived from another taxon are indistinguishable morphologically from nonintrogressed populations of WCT. Hence, establishing a threshold of “90 percent genetic purity” would be arbitrary and capricious because no scientific or commercial data exist to support that threshold based on the morphological criteria by which species are described taxonomically. In contrast, the “80 percent genetic threshold” described previously is based on the best scientific and commercial data available, although, as we have described, that threshold is not the principal criterion by which populations are included or excluded from the WCT subspecies. Similarly, as noted previously, the Solicitor's Office for Department of the Interior overturned (withdrew)—in December 1990—the Service's old “hybrid policy” which precluded federal protections to hybrid offspring or their descendants under the Act (O'Brien and Mayr 1991). Moreover, the court in the present WCT case ruled that “100 percent genetic purity” is not a condition for including populations or individual fish with the WCT subspecies under the Act.

Our criteria for including potentially introgressed populations of WCT with the WCT subspecies considered for listing under the Act also are consistent with a recent Position Paper developed by the fish and wildlife agencies of the intermountain western States (Utah Division of Wildlife Resources 2000). That document identifies, for all subspecies of inland cutthroat trout, three tiers of natural populations for prioritizing conservation and management options under the States' fish and wildlife management authorities: (1) Core conservation populations composed of ≥ 99 percent cutthroat trout genes; (2) conservation populations that generally “have less than 10 percent introgression, but [in which] introgression may extend to a greater amount depending upon