

CONCLUSIONS AND MANAGEMENT IMPLICATIONS

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6.1. Management Implications of Gap Analysis

The purpose of gap analysis is to identify two elements of biodiversity - land cover types and terrestrial vertebrate distributions - in need of consideration before they become rare. The gap analysis approach uses management objectives associated with land area as an indication of the kinds of activities that can occur on an area, and hence the potential impact on the land's biological diversity. An evaluation of other factors, such as area requirements, isolation, or disturbance regimes necessary for maintaining populations, are not considered in gap analysis. Also, species may have different responses to the same management practices, such that assigning a single protection code to an area to indicate its suitability for maintaining biodiversity may be a simplification. Nevertheless, it provides a first assessment of the protection of the land base or potential habitat for those elements.

In Arkansas, nearly 90% of the land base is privately owned and in unknown managed status (Table 4.1). Only about 2.2% of the land base is in status 1 and 2 (Table 4.2) Most of those areas have been purchased specifically for some conservation or management purpose by agencies like the Arkansas Natural Heritage Commission, the Arkansas Field Office of the Nature Conservancy, the Arkansas Game and Fish Commission, or Arkansas State Parks, or they are federally designated wilderness areas. The AGFC has the largest holdings, yet that only represents 0.79% of the state.

Given that 90% of the state is privately owned and that 44% of the state was classified as agricultural (pasture and crops), it is not surprising that 25 of 31 AR-GAP natural landcover classes (81%) maintained less than 10% of their mapped distribution in status 1 or 2. Also, 17 of 31 (55%) of the AR-GAP natural landcover classes had more than 90% of their distribution in private ownership of unknown management status.

Of the 31 natural landcover classes that could be mapped, several were present in small areas, including *Fagus grandifolia* (T.1.B.3.a.I), *Juniperus virginiana* - *Quercus* spp. (T.2.A.2.b.I), *Juniperus ashei* - *Quercus* spp. (T.2.B.3.a.II), mixed shrub species (T.4.B.3.a.II), tall grass (P.5.A.4.a.I) and *Arundinaria gigantea* (P.5.A.4.b.III). Surprisingly, over 50% of the *Fagus grandifolia*, a relic forest type in the Ozarks, was found in status 1 and 2. There is great concern about the disappearance of “cedar glades” in the Ozarks, and both cedars and cane have suffered due to fire suppression.

Many of the vegetation associations recognized by Foti et al. (1994) could not be mapped during the AR-GAP project partly because they failed to leave a unique spectral signature in the imagery used to develop the vegetation map and ground truth data were insufficient. Of those, many exist today as small, widely scattered patches of bottomland hardwood forests found throughout the Delta and Gulf Coastal Plain regions of the state. Those areas deserve special attention due to the high diversity of vegetation found there and to the high degree that they have already been fragmented and to their vulnerability to future destruction. For example, one of the rarest habitat types in the state may be the dry forests of the Delta region.

The importance of those bottomland hardwood forests was equally apparent in the analysis of terrestrial vertebrates in the state (Figure 3.6.). Oak-gum-cypress provides habitat for 214 species, or 64% of the biodiversity of Arkansas.