

The USGS National Aquatic Gap Analysis Program (Aquatic GAP)

Promoting the conservation of aquatic biodiversity

Overview

The National Gap Analysis Program (GAP) promotes biodiversity conservation by developing and sharing information on where species and natural communities occur and how they are being managed for their long-term survival.

“Gap analysis” is a scientific method for identifying the degree to which native animal species and natural communities are protected across the landscape; species and communities not adequately represented constitute conservation “gaps.”

GAP was launched in 1989 as a research project exploring how to develop predictive information to manage the nation’s biodiversity so that ordinary plant and animal species would not be threatened with extinction. Since then, important new methods to manage biodiversity across large areas have emerged. A range of tools and procedures are available, including standards for classifying natural vegetative communities, consistent satellite images from which to render digital databases, and methods to apply



Photo credit: U.S. Fish and Wildlife Service

Crayfish are just one of many species for which aquatic GAP techniques are being developed.

GAP information to everyday resource decisions and long-range planning. Today, GAP is operational nationwide and enjoys substantial international interest.

The Need for Aquatic GAP

Gap analysis was originally developed for terrestrial ecosystems. The aquatic component emerged more recently and was designed to identify the degree to which aquatic species and natural assemblages are represented in areas managed for conservation, and to identify areas where such efforts are lacking. Aquatic GAP takes into account the interrelationships between land and water and provides a mechanism for examining aquatic systems within a landscape. It builds upon the methodologies of the terrestrial GAP

to compile information on aquatic ecosystems across the United States.

The need to apply the GAP methodology to aquatic environments is increasingly critical to the survival of many aquatic species. Aquatic environments are among the most severely degraded and imperiled ecological systems. Water use practices, in-stream activities, and land-based development have contributed to the destruction of aquatic habitats and threatened a large number of aquatic species. The decrease of aquatic biodiversity – the variety of freshwater and marine living organisms and the ecological complexes of which they are a part – is a major concern of state and federal natural resource management agencies. This loss is a result of habitat destruction and