**Explanation of Conservation Action Categories**

**Used to Discuss SWAP Recommendations Summarized by Taggert**

**Recommendations summarized from SWAPs of 15 Appalachian states were divided into six categories to illustrate Science Needs, as follows:**

1. **Direct Conservation Action** **–** A diverse set of specific conservation measures recommended to affect on-the-ground accomplishments such as: acquiring land protection through acquisition or easement, restoring fish and wildlife habitats, reducing human disturbance, reintroducing native species, setting more protective harvest regulations and water quality standards, implementing pest management strategies, and providing incentives to public and private landowners to encourage conservation actions on their properties.
2. **GIS/Data Integration/Development –** Includes activities such as conducting gap analyses for specific habitats, targeting habitat protection and/or restoration opportunities across large scales to maximize effectiveness, coordinating and mapping monitoring activities and plans, tracking conservation accomplishments, mapping subterranean waterways, identifying important stop-over habitats for migratory birds, and strategic information to maximize fish passage through waterways by evaluating current impediments. An underlying issue with all of these goals is the critical necessity of sharing data to support regional conservation planning at larger landscape scales; a complicating factor is lack of standardization of data collection methods and terms, mapping scales, etc.
3. **Human Dimensions Research/Surveys –** A common theme of the SWAPs was the need to increase the effectiveness of outreach to individuals and localities for the purpose of better communicating natural resource and human health links, economic implications of various development approaches, green zoning options, commercial harvest regulation adjustments, and water resource planning. The conservation community has a need for effective marketing strategies to deliver conservation messages that might be misunderstood or poorly received if not expertly crafted. In addition, many SWAPs declared the need to increase natural resource stewardship by providing landowner incentives, but were vague regarding details of what incentives might be effective. Therefore, investigations into what types and levels of incentives would be effective across the Appalachian Region would be highly useful.
4. **Coordination of Large-scale Species Surveys –** States need to implement and coordinate surveys for species of greatest conservation need and their habitats in order to best manage both across the Appalachian landscape, especially as land use and climate changes alter their distribution. In addition, SWAPs consistently stated a need for widespread surveys to track exotic/invasive species and diseases in order to monitor and better control their spread, as well as discern their impact on populations of species of greatest conservation need.
5. **Landscape Information Needs –** Landscape-scale data sets depicting current and future conditions are required for species distributions, future land use and climate changes, urban and industrial footprints, water quality and instream flows, forest composition and health, and for resulting species/community and ecological responses.
6. **Species Biological Information Needs –** SWAPs stated considerable need for species-specific information such as minimum instream flow requirements, tolerance levels related to water quality parameters (e.g. temperature, sedimentation, contaminants, etc.), population vulnerability and viability assessments/models, breeding effort and success rates, responses to instream impediments, specific habitat requirements (vegetative structure/species composition, patch size, etc.), and restoration techniques that best maximize habitat carrying capacity.