

Recovery Potential Metrics **Summary Form**

Indicator Name: WATERSHED PERCENT PROTECTED LAND

Type: Social Context

Rationale/Relevance to Recovery Potential: Depending on the protections afforded among categories of protected land, this factor provides an indicator of the prospects for a given proportion of total watershed land area to remain in conditions desirable for water quality restoration and protection. Although this factor may not be relevant for sorting relative recovery potential among watersheds at low levels (e.g., less than 25% watershed area), impaired waters with a high proportion of protected drainage area arguably have more ecological functions remaining intact, or may take less effort to reestablish degraded functions.

How Measured: GAP stewardship data identify four categories of land protection status, three of which are protected land. Categories 1 and 2 prohibit natural land cover conversion entirely, category 3 allows for small areas of intensive use or broad areas of low-intensity use. Category 4 is unprotected. Scoring to compare land protection by watershed can most simply be done by summing the percent area by watershed in categories 1 – 3.

Data Source: The Gap Analysis Program (GAP) of the US Fish and Wildlife Service has worked in most states to compile geo-spatial data on statewide land and water protection status for combination with species range datasets. The Protected Areas Database (See: <http://www.protectedlands.net/dataportal/find.php>) contains the GIS information for the GAP. Other data on land protection may often be available at the state level.

Indicator Status (check one or more)

- Developmental concept.
 Plausible relationship to recovery.
 Single documentation in literature or practice.
 Multiple documentation in literature or practice.
 Quantification.
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Supporting Literature (abbrev. citations and points made):

- (NB GAP, 2007; Scott, J.M. 2000) GAP Protection status categories are: Status 1: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, and intensity) are allowed to proceed without interference or are mimicked through management; Status 2: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive use or management practices that degrade the quality of existing natural communities; Status 3: An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type or localized intense type. It also confers protection to federally listed endangered and threatened species throughout the area; and Status 4: Lack of irrevocable easement or mandate to prevent conversion of natural habitat types to anthropogenic habitat types. Allows for intensive use throughout the tract. Also includes those tracts for which the existence of such restrictions or sufficient information to establish a higher status is unknown.
- (Grau et al., 2003) Forest recovery tends to occur in areas of marginal agriculture: at high elevations, on steep slopes, within reserve areas, far from roads, in areas with net

population out-migration, and in small farm areas located near preexisting forests. Urban areas expand at lower elevations, on flat topography, and closer to roads and urban areas (Thomlinson et al. 1996, Helmer 2003). The landscape features that favor urbanization are the same ones that favor intensive agriculture. For example, between 1977 and 1994, new urban areas replaced 6% of the island's prime agricultural lands (López et al. 2001) (1160).