

**Course and fine filters:** Pimm et al. (1995) and Wilcove & Master (2005) make it clear that our knowledge of the taxonomy of most groups is still very patchy. We recognize most of the vertebrate species (>80%) in the world, and probably almost 100% of the vertebrates in the US, but we have described less than 5% of the the species in other taxa. These taxa collectively constitute the great majority of species. [More on this later, because there is substantial debate about the status of many taxa: are they species? subspecies? distinct population segments? evolutionarily significant units? of recent hybrid origin? of ancient hybrid origin? ]

1. For most high-level taxonomic groups other than plants and vertebrates, the problem of incomplete description creates a serious impediment to applying the species-by-species approach to conservation.
2. Even for well-described taxa, the costs of taking a single species approach to conservation are high, in terms of data requirements, time, and dollars.

These two issues lead many conservation biologists to advocate a combined ‘coarse filter/fine filter’ approach. Essentially, this is jargon for taking conservation actions in two steps:

1. **Coarse filter:** Make broad scale decisions about the *landscapes* or *communities* to be protected, and the *ecological processes* to be maintained within those landscapes or communities.

\*The landscape approach focuses on identifying areas of priority using *physical* or *habitat* features.

\*The community approach focuses on identifying areas of priority using *assemblages of species* (and the ecological linkages among them).

The assumption of the coarse filter approach is that protecting areas that seem to ecologically function in a normal manner (within the Natural Range of Variation or NRV in the terms used by the USFS in Iverson [2001]) will do a good job of protecting a wide range of species, both known and unknown.

We will discuss some of the approaches used (gap analysis, hotspots, complementarity, ‘sweeping’) and their limitations, later.

2. **Fine filter:** Once the coarse filter has been used to identify locations to be protected and the processes to be maintained within those areas, focus more detailed attention on the adequacy of these locations/processes to protect species of conservation concern.

\*The fine filter can be applied to *threatened and endangered* species.

\*It can also be applied to *umbrella* species (large range requirements, apex of food web) or to *keystone* species (high ecological connectivity, many links in food web).

