

Figure 35—Hydrologic integrity was rated for the 112 subbasins that had forest PVGs.

Figure 36—Hydrologic integrity was rated for the 86 subbasins that had range PVGs.

and riparian vegetation sensitivities are considered to have the lowest probable hydrologic integrity across the Basin. Areas with high hydrologic disturbance and low stream and riparian vegetation sensitivity, however, would likely possess higher hydrologic integrity because they are better able to absorb such disturbances without loss of hydrologic function. For these reasons, hydrologic resiliency ratings are appropriately used to interpret the effects of past management activities on hydrologic integrity.

The hydrologic integrity values assume that areas with high disturbance and low recovery potential (that is, they are not resilient) are more likely to have higher probabilities of containing altered hydrologic functions than other areas. Consequently, they are described as possessing low integrity in this report. Conversely, areas with low relative disturbance by mining, dams, roads, cropland conversion, grazing and high recovery potentials are considered to have the highest probable hydrologic or riparian integrity. The integrity values presented in this report reflect probabilities of finding altered hydrologic functions within subbasins based on relative differences between subbasins. Information presented in this section is appropriate to the description of relative differences across the Basin at the subbasin level.

Aquatic Integrity

An aquatic system that exhibits high integrity has a mosaic of well-connected, high-quality water and habitats that support a diverse assemblage of native and desired non-native species, the full expression of potential life histories and dispersal mechanisms, and the genetic diversity necessary for long-term persistence and adaptation in a variable environment. This definition is consistent with, and driven by, the goal to sustain biotic diversity and maintain ecological processes. Subbasins exhibiting the greatest level of these characteristics were rated high, those exhibiting the least were rated low, with medium ratings in between.

We have characterized subbasins along a gradient of conditions relative to a full complement of native fish and other aquatic species, well distributed in high-quality, well-connected habitats (fig. 37). Subbasins that support the full expression of life histories and a strong mosaic of productive and well-connected populations should be relatively self-contained and resilient to the natural disturbances anticipated over time periods approaching 100 years.

High aquatic integrity—These subbasins most closely resemble natural, fully functional aquatic ecosystems. In general they support large, often contiguous blocks of high-quality habitat and watersheds with strong populations of multiple species. Connectivity among watersheds and through the mainstream river corridor is generally unimpeded, and all life histories, including migratory forms, are present and important. Native species predominate, though introduced species may be present. These subbasins provide a system of large, well-dispersed habitats that are resilient to large-scale catastrophic disturbances.

Medium aquatic integrity—These subbasins support important aquatic resources, often with watersheds classified as strongholds for one or more species scattered throughout. The integrity of the fish assemblage is moderate or high. The most important difference between high integrity and medium integrity is increased fragmentation that has resulted from habitat disruption or loss. These subbasins have numerous watersheds where native species have been lost or are at risk. Connectivity among watersheds exists through the mainstem river system, or has the potential for restoration of life-history patterns and dispersal among watersheds. Re-establishing the necessary mosaic of habitats will often require conservation of existing high-quality sites as well as the restoration of whole watersheds that continue to support remnant populations.

Low aquatic integrity—These subbasins may support populations of key salmonids or have other important aquatic values (that is, threatened and endangered species, narrow endemics, and

Figure 37—Aquatic integrity was rated for the 164 subbasins.