STUDENT PAGES: Individual Activity
Definitions and Other Information

As part of this individual activity, you will use real-world data to evaluate whether or not gray wolves in the Northern Rocky Mountains have met delisting criteria. You will also evaluate other conservation questions. In the datasets, you will encounter some terms that are specific to gray wolf recovery. Below, find these terms defined.

What does "Minimum Year End Population" mean?

Using Data from Table 1, you will be asked to graph the "Minimum Year-End Population" of wolves for years 1982-2014. What does "Minimum Year-End Population" mean?

It means that the size of the population of wolves during a specific year was AT LEAST as big as the "Minimum Year End Population" estimate. Importantly, the "Minimum Year-End Population" estimates are biased LOW. In actuality, there are more wolves than the "Minimum Year-End Population" estimate.

How many more? Based on research, Montana Fish Wildlife and Parks estimate that the REAL number of wolves on the landscape is likely 25-30% more than the Minimum Year-End Population estimates.

How do wolf scientists estimate "Minimum Year-End Population"?

In Montana, the statewide Minimum Year-End Population is estimated by adding up the number of observed wolves in verified packs along with known lone animals present at the end of the year. **This is a minimum count, not a population estimate**, and has been reported as such since wolves first began re-colonizing northwest Montana in the mid 1980s. Suspected wolf packs are those that could not be verified with confidence and these suspected wolf packs are NOT included in the Minimum Year-End Population.

What does a "Breeding Pair" mean exactly?

Using Data from Table 2, you will be asked to graph the number of "breeding pairs". What does "Breeding Pair" mean?

A breeding pair is defined as an adult male and an adult female wolf, accompanied by at least 2 pups that survived at least until Dec 31.

In Montana, the number of pups is determined by observations from birth in April until year-end. Pups are counted at dens, rendezvous sites, and by direct observation during telemetry flights. Tracks are sometimes used to establish pup abundance. Only year-end abundance data (December to January) is used to establish the abundance of pups used to establish breeding pair status.

What does "Minimum Year-End Population Estimates BEFORE Human-Caused Mortality" mean?

Using Dataset 5, you will be asked to graph the "Minimum Year-End Population Estimate BEFORE Human-Caused Mortality". What does this mean? This is the minimum number of wolves that WOULD HAVE been alive at the end of the year if no human-caused wolf mortalities occurred during that year.

How is a wolf pack defined?

Using GPS data and a GIS, you will be mapping the total number of wolf packs throughout the Northern Rocky Mountains. How is a wolf pack defined and how do scientists estimate the number of wolf packs for each year?

A wolf pack includes 2 or more individual animals that existed on the landscape on December 31 of a specified year. If a pack was removed because of livestock conflicts or otherwise did not exist at the end of the calendar year (e.g. disease, natural/illegal mortality or dispersal), it is not included in the year-end total of number of wolf packs or displayed on the wolf pack distribution map for that calendar year.

The number of individual wolves in each pack is determined when possible. For radio-marked packs, the number is typically the maximum count obtained via direct observation of the marked pack during January to December. Harvest and other mortality data are cross-referenced with field observations. For unmarked packs, a combination of observations are used to establish year-end pack size including the maximum number directly observed or the maximum number determined from tracks. In Montana, MFWP staff typically only use observation data from professional staff, although public observations are usually considered. Final counts on umarked packs are decided based on the best information available in January to December. Lone dispersing animals are accounted for when reliable information is available.

Who "owns" wildlife, including wild wolves?

You do. The Public Trust Doctrine holds that all wildlife and other natural resources (air, water, submerged lands, etc.) are held in "trust" by the government for the benefit of the public. Government does not own wolves or other wildlife species. Government is entrusted with their long term management and care. For management of any wildlife species (including wolves), science is the basis for decision-making.