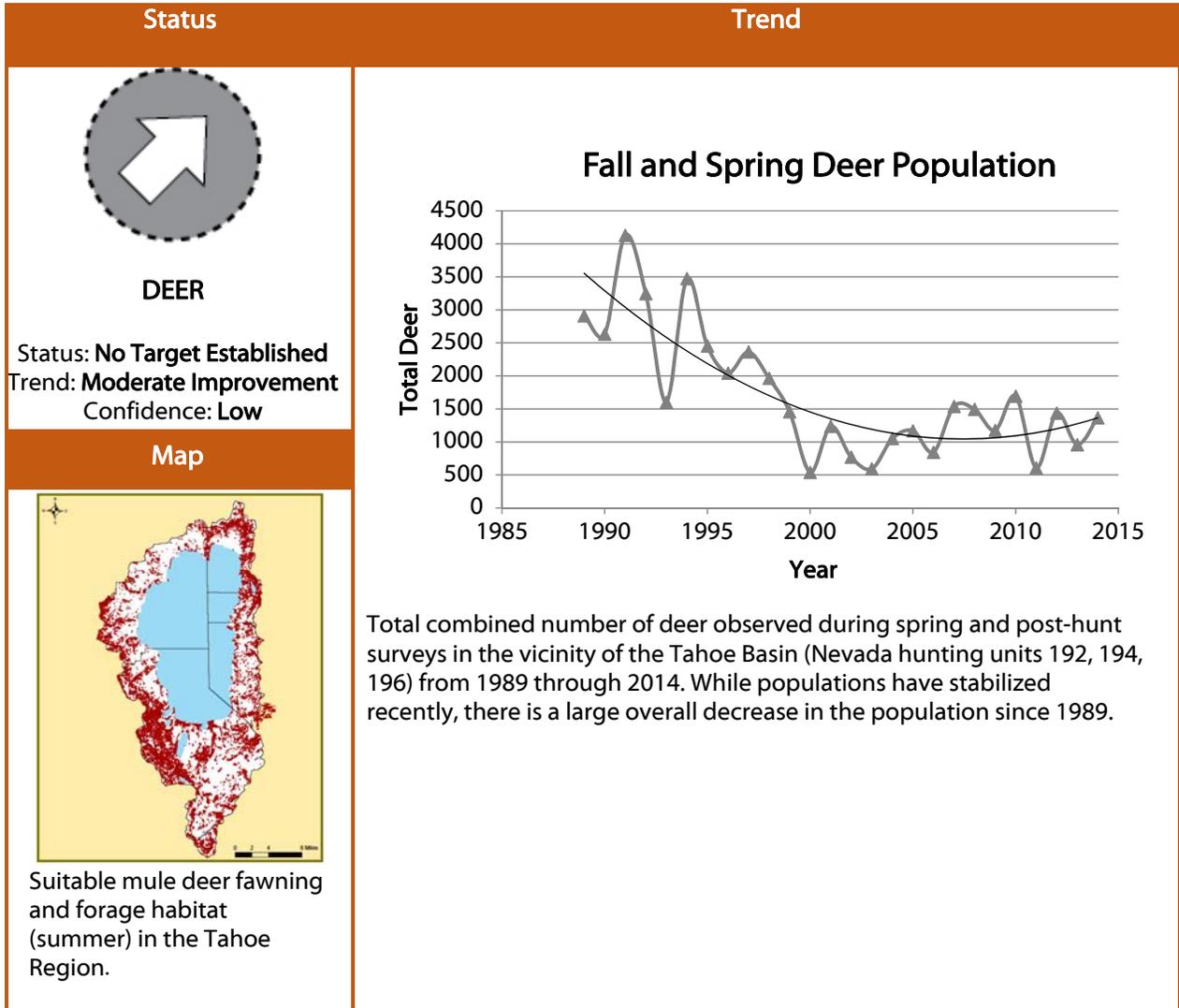


APPENDIX F:

Special Interest Species: Deer



Data Evaluation and Interpretation

BACKGROUND

Relevance – Mule deer (*Odocoileus hemionus*) are of exceptional value to the public for wildlife viewing and hunting. Portions of deer from the Verdi sub-unit of the Loyalton-Truckee herd and the Carson River herd can be found in the Tahoe Basin during the summer and typically migrate to lower elevation areas with less snow for the winter. The spring and fall counts indicator measures the total number of deer counted during post-hunt (fall) and spring aerial surveys in the vicinity of the Tahoe Basin (Nevada hunting units 192, 194, and 196). While TRPA does not permit projects that would reduce the availability of fawning habitat, populations are mostly affected by loss of wintering habitat outside the basin, and therefore TRPA has little influence over population health. Information is presented simply to inform the reader on regional status and trends.

TRPA Threshold Category – Wildlife

TRPA Threshold Indicator Reporting Category – Special Interest Species

Adopted Standards – No threshold standard has been adopted for the spring and fall deer counts indicator. This indicator provides information relevant to the adopted management standard requiring maintenance of all fawning habitat within the Tahoe Basin.

Type of Standard – Not applicable

Indicator (Unit of Measure) – Total number of deer observed during spring and post-hunt aerial surveys in Nevada hunting units 192, 194, and 196.

Human & Environmental Drivers – The long-term decline (1989 through 2014) in the deer population is likely due to wintering habitat loss and fragmentation in areas outside the Tahoe Basin (Nevada Department of Wildlife 2015). This decline coincided with population declines throughout Nevada. Since 2011, the observed deer herds have dealt with extreme drought. The drought reduces available forage, yet also makes it easier for fawns to survive the winter. Thus far, there has been no observed change in population due to the drought (Nevada Department of Wildlife 2015). TRPA has not permitted projects that would reduce the availability of fawning habitat, or reduce the connectivity of known migration corridors within the Tahoe Basin, so changes in habitat conditions in the basin were not a likely driver of either trend.

MONITORING AND ANALYSIS

Monitoring Partners – Nevada Department of Wildlife, California Department of Fish and Wildlife

Monitoring Approach – Biologists from state wildlife agencies perform a combination of line transect and directed search aerial surveys to record the total number of deer observed and categorize them by age and sex. The surveys include a post hunting season survey in December or January, and a spring survey in March. Only a small portion of these surveys occur within the eastern portion of Tahoe Basin, but these surveys document migratory herds, some of which enter the basin for portions of the year.

Analytic Approach – Total populations from spring and fall counts are totaled every year in annual reports by Nevada Department of Wildlife and are analyzed for trends by TRPA.

INDICATOR STATE

Status – No target has been established for the fall and spring deer counts. Therefore, a status of “no established target” was made. Since 1989, the total number of mule deer observed during the combined spring and post-hunt counts has fluctuated between 540 and 4,128 individuals, with 1,365 observed in 2014, the most recent year data is available (Nevada Department of Wildlife 2015). Extensive research has been done on the Verdi sub-unit of the Truckee-Loyalton deer herd. However, tagging efforts have consistently shown little to no migration of this herd into the Tahoe Basin (California Department of Fish and Wildlife 2011; Holm 2016).

Trend – From 2000 through 2014, a linear regression showed a statistically significant ($P = .01$, $R^2 = 0.54$) increasing trend. Therefore, a trend of “moderate improvement” was determined. However, the overall trend from 1989 to 2014 is a statistically significant ($R^2 = 0.502$, $P = <0.05$) decreasing trend due to habitat fragmentation associated with development in the Carson Valley, Reno area, and Truckee (Nevada Department of Wildlife 2015).

Confidence –

Status – Confidence in the status is moderate. Data is collected by qualified wildlife biologists following standard protocols. However, since 2006, the post-hunt surveys have been conducted slightly later, which may allow a greater portion of the herd to migrate into the study area and increase the number of observations. This change in survey timing reduces the confidence in making long term comparisons of the data. Additionally, years of low snowfall were noted as

being very difficult to survey because many deer were residing higher than normal above the snowline, mostly in the trees (Nevada Department of Wildlife 2013). Data since 2006 is collected at the same time each year, except for the lack of spring surveys in 2012 and 2015. Spring counts for 2012 were estimated by TRPA based on the average of the three most recent years of data. Because survey data represents herds that spend little to no time in the basin, confidence in the status is low.

Trend - Confidence in the trend since 2000 would be moderate ($P = .01$, $R^2 = 0.54$); however, because survey data represents herds that spend little to no time in the basin, confidence in the trend is low.

Overall – Because data does not directly relate to the standard, overall confidence is low.

IMPLEMENTATION AND EFFECTIVENESS

Programs and Actions Implemented to Improve Conditions – TRPA does not permit projects that would degrade fawning habitat or fragment known migration corridors. Additional measures that provide indirect benefits to mule deer are found in the TRPA Goals and Policies and Code of Ordinances as well as other state and federal laws.

Effectiveness of Programs and Actions – Existing programs have maintained the condition of fawning habitat and migration routes within the Tahoe Basin. Development, fragmentation, and other habitat modifications outside the Tahoe Basin continue to have significant influence over deer populations in the basin.

RECOMMENDATIONS

Analytic Approach – No changes recommended until standard is clarified.

Monitoring Approach – No changes recommended until standard is clarified.

Modification of the Threshold Standard or Indicator – Clarify standard.

Attain or Maintain Threshold – Continue to explore coordination with land management agencies outside the basin to improve habitat connectivity and migration routes.