

## East Kootenay Urban Mule Deer Translocation Trial – project summary

*Following is a brief summary of major findings from the East Kootenay Urban Mule Deer Trial. For complete details and results, please see the full report.*

The East Kootenay Urban Mule Deer Translocation Trial was a cooperative undertaking of BC Ministry of Forests, Lands & Natural Resource Operations (FLNRO), four municipalities in the East Kootenay region of southeast British Columbia: Elkford, Kimberley, Cranbrook and Invermere and many volunteers. The trial was undertaken to test animal translocation as a non-lethal method of controlling overabundant mule deer populations within these municipalities.

The trial objectives are to:

1. Determine the causes of and rate of mortality during each stage of the translocation process (capture & handling, transport and post-release).
2. Document movement and home range of radio-collared translocated urban mule deer.
3. Compare translocated urban deer survival and movements to non-urban populations of mule deer.

Between February 16 and March 10, 2016, 60 mule deer were translocated from the participating municipalities to four release sites on mule deer winter ranges in the East Kootenay: Newgate Transfer Station, Dorr Road, Lavington Flats, and the south side of Mt Broadwood on the Ram Forest Service Road. Twenty-nine of these deer were fitted with GPS-transmitter collars to track their movement and survival.

From March 6 to 10, 2017, an additional 25 deer were translocated to km 28.5 on the Kootenay River Forest Service Road northeast of Canal Flats, BC. Eighteen of these deer were also fitted with GPS-transmitter collars. All releases were directly from the trailer or “hard releases”. Of the total 47 collared deer released in 2016 and 2017, seven individuals died (all by predation) within 60 days of their release. These deer were excluded from subsequent analyses due to lack of data.

The BC Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is concurrently conducting a 5-year study, initiated in 2014, to monitor survival, cause of mortality and recruitment in four populations of *non-urban* mule deer. Deer were fitted with GPS collars that attempted to capture and transmit the deer’s location 1 to 2 times per day. Preliminary survival, mortality and movement data from non-urban deer collared during the translocation period were provided by FLNRO for comparison with translocated urban deer.

Movement of individual collared urban deer after release varied greatly among individuals. Movement generally increased in May, consistent with typical non-urban mule deer migration pattern in the East Kootenay region, then declined abruptly in mid-June when fawns are born. Movement increased again through late summer and autumn, without a clear concentrated migration timing as was evident in the spring. Lowest movement rates occurred in winter.

Three main categories of overall movement were recognized:

- **Migratory:** deer showed discreet seasonal home ranges, moving between them in spring and fall; 13 deer were classified as migratory.
- **Non-migratory:** deer showed no difference in seasonal location, remaining (more or less) in the same area year-round; 15 deer were classified as non-migratory.
- **Wandering:** deer typically showed long-distance, short-term movement that was usually one-way and continued until a community was “found” where the deer stayed; 12 deer were classified as wandering.

Wandering deer had the largest home ranges, while non-migratory deer had the smallest home ranges. On average, translocated urban deer had smaller home ranges than non-urban deer in the same migration category. Most non-urban deer were migratory (some were non-migratory) and no non-urban mule deer exhibited the “wandering” behaviour. Non-urban deer tended to migrate farther, but maintained smaller discreet summer and winter home ranges.

Sixteen of 40 radio-collared deer surviving >60 days moved to a town or community at some point. Twelve of these 16 remained in those towns. Nine other deer moved to rural communities or private properties with six of them permanently remaining in those areas. In some cases deer moved away from these areas (two left towns; three left rural areas). Fifteen of the 40 radio-collared deer surviving >60 days were never recorded in a town or rural area.

Of deer moving to towns, seven generated complaints to the BC Provincial RAPP toll free line; while one rural deer also generated complaints. No complaints were received for deer without radio collars. The movement of habituated deer to human development is a major potential limiting factor to the implementation of translocation as an ongoing operational tool to manage urban deer populations in the East Kootenay.

Annual survivorship of translocated deer for the period May 1, 2016 through April 30, 2017 was 51.1%. This estimate was lower than non-urban mule deer, which showed 78.9% annual survivorship over the same period. The approximately 50% first year annual survival rate was consistent with other recent urban mule deer translocation projects in New Mexico and Utah. However neither of these projects reported deer exhibiting the wandering behaviour and none had habituated deer become problem animals in other communities or private land.

The raw percentage of collared individuals surviving from translocation through late August in both years was similar: 71.4% in 2016 and 72.2% in 2017. Mortality rate by month was very similar between translocated urban and non-urban mule deer. Most mortality occurred in April and May during spring migration.

Translocated deer (24.9%) had slightly lower proportion of collared individuals killed by predation compared to non-urban deer (28.1%). This result suggests that urban deer are not predator-naïve, but able to seek protection and avoid predation as well as non-urban deer. The overall higher mortality rate of translocated deer was attributable to a number of causes, primarily translocated deer being destroyed for aggressive behaviour or dying in an emaciated condition. Whether deer were weakened because they were not familiar with local food sources or were not in seasonally appropriate habitats or were simply in poor body condition (e.g. aged) is unknown.

Overall, the results of the translocation trial showed highly individualized responses by the deer. Some individuals adopted typical migratory behaviour and never returned to any community. The propensity of some individuals to seek out any community in which to settle is problematic because regional wildlife managers do not want to distribute habituated mule deer to other communities. The translocated deer showed they are not predator-naïve and are capable of surviving outside largely predator-free urban environments.

Several specific conclusions and recommendations are provided in the full report.