Thesis title:

Effects of forest thinning treatments on mammals in a southwestern mixed coniferous forest

May 2007

Thesis abstract:

Coniferous forests in the American Southwest have experienced major ecological changes in structure, composition, and processes over the last century, resulting in increased risk of catastrophic forest fires. Silvicultural treatments are often used to reduce build-up of woody fuels. The purpose of this study was to assess the influence of fuels reduction thinning on mammal communities. The study site was located in mixed coniferous forest, in the Sacramento Mountains, New Mexico. Treatments included lop/pile, lop/scatter, commercially thinned and non-thinned treatments. A total of 10 7x7 small mammal mark-recapture grids were established in each treatment. For the non-thinned treatment, 5 grids were located in a 20-30 year post commercial harvest stand and 5 were located in a 60-100 years post commercial harvest stand. Grids were sampled from May-Aug 2005 and June-Aug 2006, resulting in 27,440 trap-nights. Large mammals were evaluated using infrared motion cameras over 1,410 camera-trap nights. 1,424 small mammals of 10 species were captured. The deer mouse (Peromyscus maniculatus), gray-footed chipmunk (Tamias canipes) and long-tailed vole (Microtus longicaudus) accounted for 96% of all individuals captured. In general, thinned treatments had higher richness and abundance of mammals in comparison with the 60-100 year non-thinned treatment, but did not differ in richness and abundance from the younger 20-30 year non-thinned treatment. Deer mouse abundance did not differ among treatments. Gray-footed chipmunk abundance was significantly lower in the 60-100 non-thinned stand. Long-tailed vole abundance was significantly lower in the 60-100 non-thinned stand than in all thinned treatments. All carnivores were documented in lop/pile (91%) and lop/scatter (9%). Most ungulates (68% elk, 80% mule deer) were documented in thinned treatments. Specific species of interest should be considered when making management decisions, but thinning appeared to benefit the mammal community in this mixed coniferous forest.
Education:

B.S. Conservation Science and B.A. Political Science (Cum Laude); Muskingum College; 2004.

M.S. Wildlife Science; New Mexico State University; May 2007

Awards:

- Ladd S. Gordon Memorial Scholarship, 2006
- Hugh Kuhn Science Award, 2004
- Third Team, All USA College Academic Team, 2004
- National Qualifier for Intercollegiate Persuasive Public Speaking, 2000-2003
- S.C.U.S.A. Delegate to West Point Military Academy, 2002
- Charles J. Ping Community Service Award, 2002
- Honor Graduate from Air Force Basic Training, 2001
- Deans List, Muskingum College, 1999-2004
- Ohio Soybean Council for Excellence in Environmental Science Research, 1999
- Governors Award for Excellence in Environmental Research 1999
- Outstanding Science Student, 1999
- State Board of Education Award of Merit, 1999
- American Association of University Women Scholarship, 1999
- VFW, Voice of Democracy public speaking contest, 9th in District, 1999
- Outstanding Leader Award 1999
- Scholar Athlete Award, 1999

Leadership positions:

- President, Graduate Student Association, New Mexico State University
- President, Tri Beta (Biological science Honorary)
- President, Terra Via
- Captain, Speech and Debate Team
- President, Muskies Against Poverty
- Vice-President, Bacchus
- Editor, Yearbook Staff

Other notables:

- Staff Sergeant, United States Air National Guard, 2000-present (Operations Northern Watch, Enduring Freedom, Noble Eagle, and Iraqi Freedom)
- Black Belt in Ryu-Kyu Karate
Grants supporting her thesis:

T&E Inc. Camera trapping of carnivores on Lincoln National Forest. $2,500

Professional presentations related to his thesis:


Publications resulting from thesis:


Christy measuring least shrew habitat.