Tables

Table 1. Papers with data included in this study.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Paper | Year | Journal | Location | Measurements | Fire Intensity | State | Forest Type | Fuel Type | Years Since Treatment | Latitude | Longitude |
| Collins et al 2007 | 2007 | Forest Ecology & Management | Blodgett Forest Research Station, California | Percent Cover, Species Richness | Medium | California | Mixed Conifer | litter | 2 | 38.88629 | -120.648 |
| Dodson et al 2007 | 2007 | Restoration Ecology | Lubrecht Experimental Forest, Montana | Percent Cover, Species Richness | Low | Montana | Ponderosa Pine/Douglas Fir | grass | 3.5 | 46.8916 | -113.434 |
| Dodson 2004 | 2004 | Dissertation at University of Montana | Lubrecht Experimental Forest, Montana | Percent Cover | Low | Montana | Ponderosa Pine | grass | 2.5 | 46.8916 | -113.434 |
| Fornwalt et al 2010 (RL) | 2010 | Biological Invasions | Pike National Forest, Colorado | Percent Cover, Species Richness | Low | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| Fornwalt et al 2010 (UH) | 2010 | Biological Invasions | Pike National Forest, Colorado | Percent Cover, Species Richness | High | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| Fornwalt et al 2010 (UL) | 2010 | Biological Invasions | Pike National Forest, Colorado | Percent Cover, Species Richness | Low | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| Fornwalt et al 2010 (UM) | 2010 | Biological Invasions | Pike National Forest, Colorado | Percent Cover, Species Richness | Medium | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| Fornwalt et al 2014 (R) | 2014 | Journal of Vegetation Science | Pike National Forest, Colorado | Percent Cover, Species Richness | Low | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| Fornwalt et al 2014 (U) | 2014 | Journal of Vegetation Science | Pike National Forest, Colorado | Percent Cover, Species Richness | Medium | Colorado | Ponderosa Pine/Douglas Fir | grass | 2 | 39.1833 | -105.317 |
| FulÃ© et al 2005 | 2005 | Forest Ecology and Management | Kaibab National Forest, Arizona | Percent Cover, Species Richness | Low | Arizona | Pine-Oak Forest | grass | 4 | 35.2432 | -112.19 |
| Huffman et al 2013 | 2013 | Forest Ecology and Management | Kaibab NF, Arizona | Percent Cover, Species Richness | Low | Arizona | Pinyon Juniper Woodlands | grass | 5 | 35.2432 | -112.19 |
| Kane et al 2010 | 2010 | Applied Vegetation Science | Challenge Experimental Forest, California | Percent Cover, Species Richness | Medium | California | Ponderosa Pine | grass | 4 | 39.29 | -121.13 |
| Kerns et al 2006 | 2006 | Ecoscience | Malheur NF, Oregon | Percent Cover, Species Richness | Low | Oregon | Ponderosa Pine | grass | 5 | 44.10444 | -118.656 |
| Knapp et al 2006 | 2006 | Canadian Journal of Forest Research | Sequoia National Park | Percent Cover, Species Richness | Medium | California | Mixed Conifer | litter | 3 | 36.43345 | -118.685 |
| Laughlin et al 2008 | 2008 | Plant Ecology | Coconino National Forest, Arizona | Species Richness | NA | Arizona | Ponderosa Pine | grass | 3 | 34.9249 | -111.736 |
| Mason et al 2009 (BA) | 2009 | Forest Ecology & Management | Lincoln National Forest, New Mexico | Percent Cover | NA | New Mexico | Mixed Conifer | litter | 1 | 32.88638 | -105.688 |
| Mason et al 2009 (CO) | 2009 | Forest Ecology & Management | Lincoln National Forest, New Mexico | Percent Cover | NA | New Mexico | Mixed Conifer | litter | 2 | 32.88638 | -105.688 |
| Mason et al 2009 (SL) | 2009 | Forest Ecology & Management | Lincoln National Forest, New Mexico | Percent Cover | NA | New Mexico | Mixed Conifer | litter | 2 | 32.88638 | -105.688 |
| Metlen and Fiedler 2006 | 2006 | Forest Ecology & Management | Lubrecht Experimental Forest, Montana | Percent Cover, Species Richness | Low | Montana | Ponderosa Pine/Douglas Fir | grass | 2 | 46.8916 | -113.434 |
| Nelson et al 2008 | 2008 | Ecological Applications | Colville, Okanogan, Wenatchee National Forests, Washington | Percent Cover | Low | Washington | Ponderosa Pine | grass | 8 | 48.67507 | -119.855 |
| O'Connor et al 2013 | 2013 | Environmental Management | High Desert Ecological Province, Oregon | Percent Cover | NA | Oregon | Pinyon Juniper Woodlands | grass | 2 | 43.75361 | -118.918 |
| Phillips and Hutchinson 2007 (OH) | 2007 | USDA Forest Service Proceedings | Central Appalachian Plateau in Ohio and Southern Appalachian Mountains in North Carolina | Percent Cover, Species Richness | Medium | Ohio | Mixed Oak Forests | litter | 2 | 38.94118 | -82.2546 |
| Phillips and Hutchinson 2007 (SA) | 2007 | USDA Forest Service Proceedings | Central Appalachian Plateau in Ohio and Southern Appalachian Mountains in North Carolina | Percent Cover, Species Richness | Medium | Ohio | Mixed Oak Forests | litter | 2 | 39.1773 | -82.9795 |
| Phillips and Waldrop 2007 | 2008 | Forest Ecology & Management | Clemson Experimental Forest, South Carolina | Percent Cover | Medium | South Carolina | Pinus taeda/Pinus echinata forests | litter | 2 | 35.0276 | -82.4194 |
| Provencher and Thompson 2014 | 2014 | Rangeland Ecology and Management | Smith Valley, Utah | Percent Cover | NA | Nevada | Pinyon Juniper Woodlands | grass | 4 | 39.26 | -114.575 |
| Scudieri and Sieg 2010 (CH) | 2010 | Forest Ecology & Management | Fort Valley EF and Long Valley EF in Coconino NF, Arizona | Percent Cover, Species Richness | Low | Arizona | Ponderosa Pine | grass | 2 | 34.9249 | -111.736 |
| Scudieri and Sieg 2010 (LI) | 2010 | Forest Ecology & Management | Fort Valley EF and Long Valley EF in Coconino NF, Arizona | Percent Cover, Species Richness | Low | Arizona | Ponderosa Pine | grass | 2 | 34.9249 | -111.736 |
| Waldrop et al 2010 | 2010 | Forest science | Southern Appalachian Mountain, North Carolina | Percent Cover | Medium | North Carolina | Mixed Oak Forests | litter | 3 | 35.29536 | -83.9795 |
| Waldrop et al 2008 (GR) | 2008 | Forest Ecology & Management | Green River Site, North Carolina and Ohio Hills, Ohio | Percent Cover | Medium | North Carolina | Mixed Oak Forests | litter | 2 | 35.28333 | -82.2833 |
| Waldrop et al 2008 (OH) | 2008 | Forest Ecology & Management | Green River Site, North Carolina and Ohio Hills, Ohio | Percent Cover | Medium | Ohio | Mixed Oak Forests | litter | 2 | 39.2 | -82.3833 |
| Weekley et al 2013 | 2013 | Southern Appalachian Botanical Society | Lake Wales Ridge State Forest, Florida | Percent Cover | Medium | Florida | Longleaf Pine | grass | 2 | 27.67972 | -81.4361 |
| Wienk et al 2004 | 2004 | Forest Ecology & Management | Badger Game Production Area, South Dakota | Species Richness | Low | South Dakota | Ponderosa Pine | grass | 2 | 44.44485 | -103.903 |
| Wolk and Rocca 2009 | 2009 | Forest Ecology & Management | Heil Valley Ranch, Colorado | Percent Cover, Species Richness | NA | Colorado | Ponderosa Pine | grass | 3 | 40.14941 | -105.3 |
| Youngblood et al 2006 | 2006 | Forest Ecology & Management | Blue Mountains, Oregon | Percent Cover | Low | Oregon | Ponderosa Pine/Douglas Fir | grass | 5 | 45.72738 | -117.273 |
| Zald et al 2008 | 2008 | Forest Ecology & Management | Teakettle Experimental Forest, California | Percent Cover | Medium | California | Mixed Conifer | litter | 1.5 | 36.96667 | -119.017 |
| Zhang et al 2008 | 2008 | Canadian Journal of Forestry | Blacks Mountain Experimental Forest, California | Percent Cover | NA | California | Ponderosa Pine | grass | 5 | 40.73027 | -121.15 |

Table 2. Contrast coefficient lower and upper confidence limits (90%) and adjusted p values for pairwise treatment contrasts (15 comparisons tested). Positive coefficients indicate response variable was higher in first treatment listed, negative indicate response was greater in second. We considered all hypotheses as one-tailed and therefore report 90% confidence intervals. We report experiment-wide adjusted p-values <0.1 as significant (in bold).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Response | Burn vs Control | | | Burn vs Thin | | | Thin vs Control | | |
|  | lb | ub | adj. p | lb | ub | adj. p | lb | ub | adj. p |
| exotic richness | 0.240 | 1.05 | **0.10** | -0.880 | -1.77 | > 0.1 | 0.534 | 1.29 | **<0.001** |
| herb cover | -0.061 | 0.668 | > 0.1 | -01.01 | 0.260 | > 0.1 | -0.002 | 0.672 | > 0.1 |
| shrub cover | -1.55 | -0.41 | **0.069** | -2.08 | 1.05 | > 0.1 | -0.676 | 0.979 | > 0.1 |
| total cover | -0.624 | -0.031 | > 0.1 | -2.31 | 0.202 | > 0.1 | -0.166 | 0.696 | > 0.1 |
| total richness | -0.361 | 0.466 | > 0.1 | -1.22 | 0.911 | > 0.1 | -0.202 | 0.769 | > 0.1 |

Figure Captions

Figure 1: Geographic distribution of data sources. Each triangle represents a study site.

Figure 2: Thinning treatments caused an increase in exotic species richness compared with control treatments (adjusted p=0.001).

Figure 3: Burning treatments caused an increase in exotic species richness compared with control treatments (adjusted p=0.100).

Figure 4: Burning treatments caused a decrease in shrub cover when compared with control treatments (adjusted adjusted p=0.0689).