



# Sierra Pacific Industries

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Northern Spotted Owls near Weaverville and Trinity Lake, Trinity County  
Within the Landscape Survey Strategy Area  
(An Interim Report)  
June 2013

## **Introduction**

In 2003, Sierra Pacific Industries (SPI) coordinated with the US Fish and Wildlife Service (Service) to design a comprehensive multi-year survey of northern spotted owls (NSO), which we called the Landscape Survey Strategy (LSS). It was designed to survey all suspected spotted owl nesting/roosting habitat within SPI lands and extending out to 0.7 miles from SPI. The total area within the LSS was 307,408 acres, of which 142,279 acres (46%) belonged to SPI. Most of the neighboring lands are under the control of the Shasta-Trinity National Forest. This strategy established 474 permanent survey points (Map 1) that were surveyed for the five years from 2003 through 2007.

In years previous to the 1990 listing of the NSO under the U.S. Endangered Species Act, SPI surveyed much of their ownership in Trinity County to the north and south of Weaverville to determine how many NSO activity centers were present. Surveys were done using protocols existing at the time, but may not have been comprehensive in area coverage, and negative results were not compiled. In addition, activity centers in older California Natural Diversity Data Base records were included in the SPI database.

Thus, while we had a good general idea of the extent and numbers of sites on SPI lands, we knew that we did not have an accurate estimate of the number of NSO occupied activity centers. During the 1990s, our approximate estimate of activity centers on or near the property was 52 (Map 2), but that estimate was subject to several sources of error, especially inclusion of older sites from over a decade earlier (some from as early as 1974). We could not estimate how many of these met the protocol definition of occupied.

In the decade following the 1990 federal listing of the NSO, the activity centers recorded prior to the listing were not surveyed systematically. Instead, most surveys during that period were project based (i.e., during THP prep for the THP area only). Through the 1990s and early 2000s, all THPs were surveyed and harvested under no-take guidance, according to the Forest Practice Rules and to whichever agency process was in place at the time. We occasionally found occupied sites in new areas, but many older sites were not revisited over a period of several years. Birds were not marked (by banding), so we could only speculate as to movements.

Also during the early 1990s, the Service designated five sites as abandoned. Three of these ACs had been subject to more extensive timber harvest prior to the listing, and they had not been found to be occupied at any time since the listing of the NSO (Map 3).

## **Results**

The number of occupied activity centers found during the 2003 - 2007 surveys was 47 (Map 3), of which nine were not known previously. Coincidentally, nine older activity centers were not occupied during this five-year survey period. Most of the new activity centers established by this LSS effort were near older, unoccupied activity centers.

In 2011, we began a three-year re-survey of the LSS stations. The third year of that re-survey effort is presently underway. During the first two years, we found 46 occupied activity centers within the original LSS area, ten of which were in new locations (Map 4). One activity center occupied during the 2003-2007 surveys was destroyed by wildfire prior to 2011. Again, new activity centers were usually near older activity centers now unoccupied. Except for the loss to wildfire the estimated population density is the same, with one additional year of surveys to complete to meet the protocol requirements.

In both of these survey periods, some ACs were determined to not have any responses and historically would have been declared abandoned by the USFWS. Service direction changed in this time period, and the 2011 protocol no longer included a definition for abandoning sites. Thus ACs from owls that may have moved on the landscape continue to increase in number while numbers of occupied ACs and density of owls remained constant.

In response to the Service's revision of the survey protocol in 2011, we switched to using electronic calling machines for these surveys, and also added over 180 new calling stations, extending geographic extent of the survey effort by about 40 percent, most of which is US Forest Service land within 1.3 miles of SPI ownership. This resulted in location of still more activity centers outside the original LSS area; these sites have not been included in the summary previously mentioned (Map 5). Also, in 2011, we began banding all NSO on the ownership, so that in the future we will be able to ascertain whether birds in new locations are residents that have relocated, or whether they are immigrants. During this recent 2011- 2012 effort we were able to determine that 20 of these 46 occupied nest sites were reproductive, producing at least 34 fledglings.

## **Summary and Conclusion**

In summary, the uncertainty associated with the estimate of territories extant at the time of listing precludes precise comparison of numbers over the past 23 years. However, while we have seen some change in the location of occupied activity centers, we see no indication of a population decline in the LSS area during the period between the 2003-2007 LSS surveys and the surveys being conducted now. While we recognize that this is a very small portion of the California population and our work is not a demographic study; it is worth noting that the LSS area apparently is not showing a similar decline as reported from the NSO demographics studies. The Willow Creek Study area (referred to as NWC) is the nearest USFS demographic study area to the LSS and they have an estimated annual decline of 1.7%. The current range wide demographic average is an estimated annual decline of 2.9% (Forsman et al, 2011). Compared to those values our numbers of occupied ACs and density of owls appears stable.

Since the listing over the past 22 years, all THPs have been conducted under no-take guidance in effect at the time of harvest. The increased survey effort, improved protocols, and initiation of banding should improve our understanding of the owl population in this area in the future.

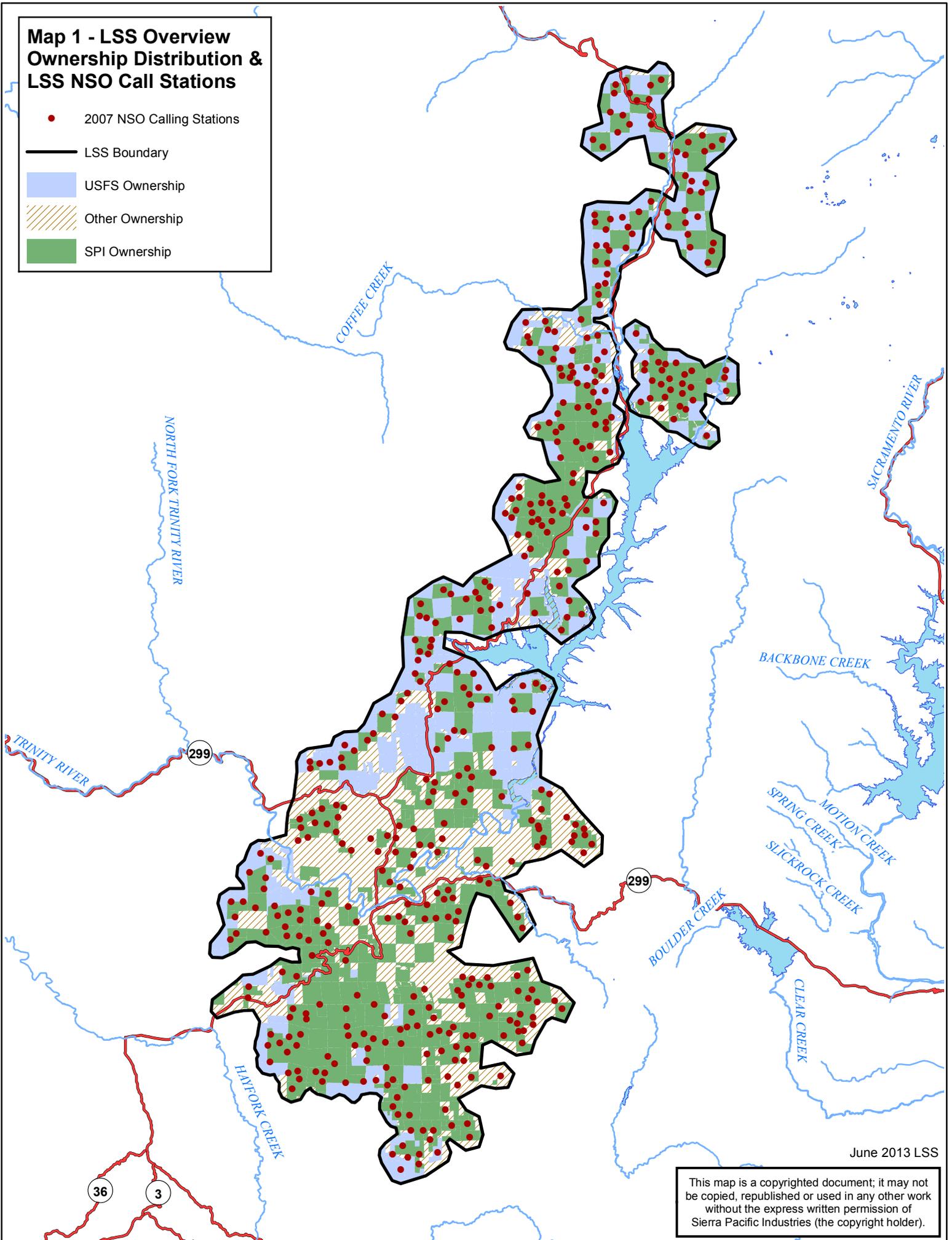
In conclusion, to our knowledge, our LSS effort to determine the number of occupied ACs on a fixed area of land is the only existing dataset upon which to assess potential impacts over time of Forest Practice Rule - guided management on NSO density. This study shows that for the period from 2003 through 2012, despite active timber harvest, there has been no discernible change in population density. While there have been apparent movement of owls on this landscape, and as described above, a resultant increase in the number of ACs, the numbers of occupied ACs and density of owls have remained constant.

## **References**

Forsman, Eric D. Population Demography of Northern Spotted Owls: Published for the Cooper Ornithological Society. Vol. 40. University of California Pr, 2011.

# Map 1 - LSS Overview Ownership Distribution & LSS NSO Call Stations

- 2007 NSO Calling Stations
- LSS Boundary
- USFS Ownership
- ▨ Other Ownership
- SPI Ownership

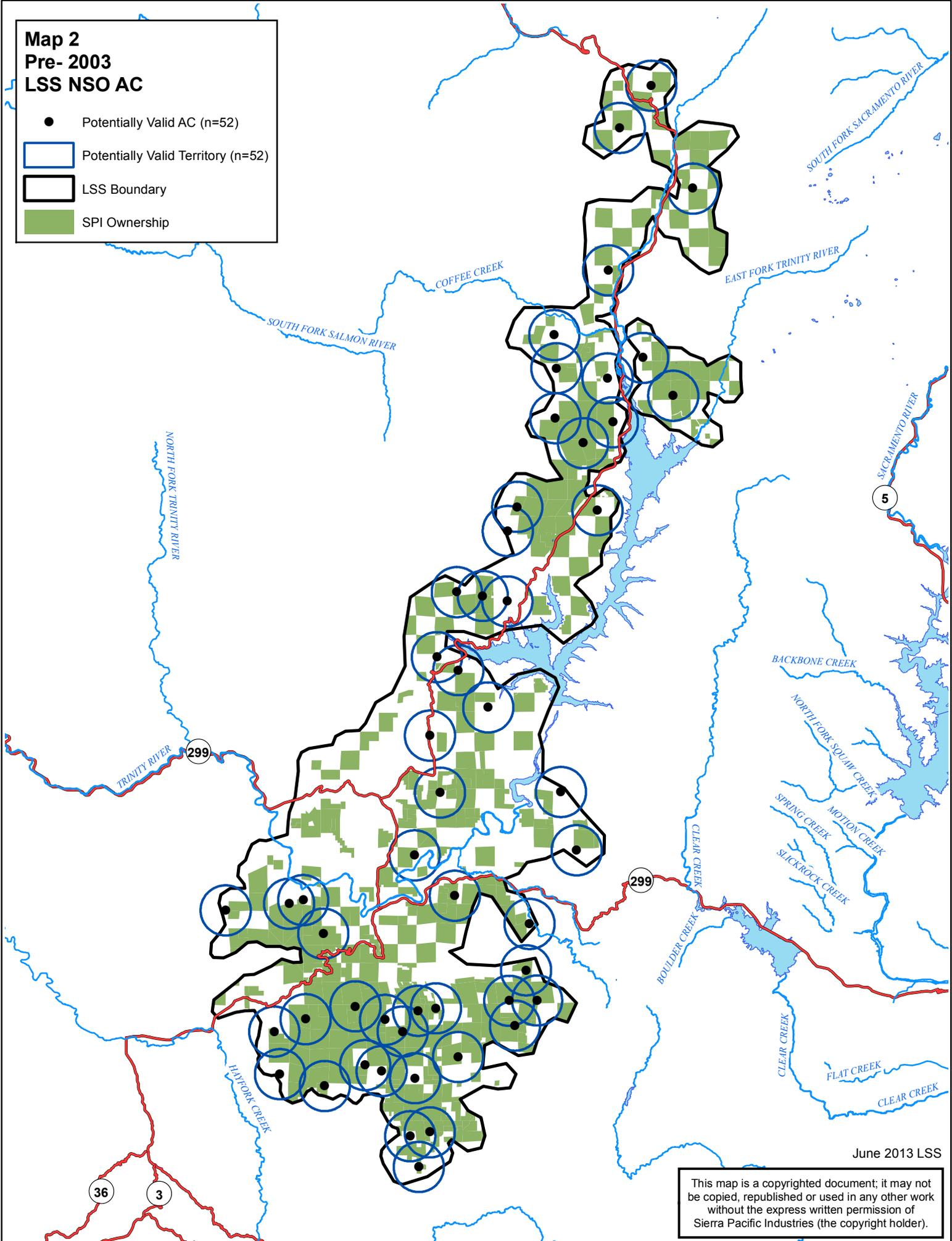


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**Map 2**  
**Pre- 2003**  
**LSS NSO AC**

- Potentially Valid AC (n=52)
- Potentially Valid Territory (n=52)
- ▭ LSS Boundary
- SPI Ownership

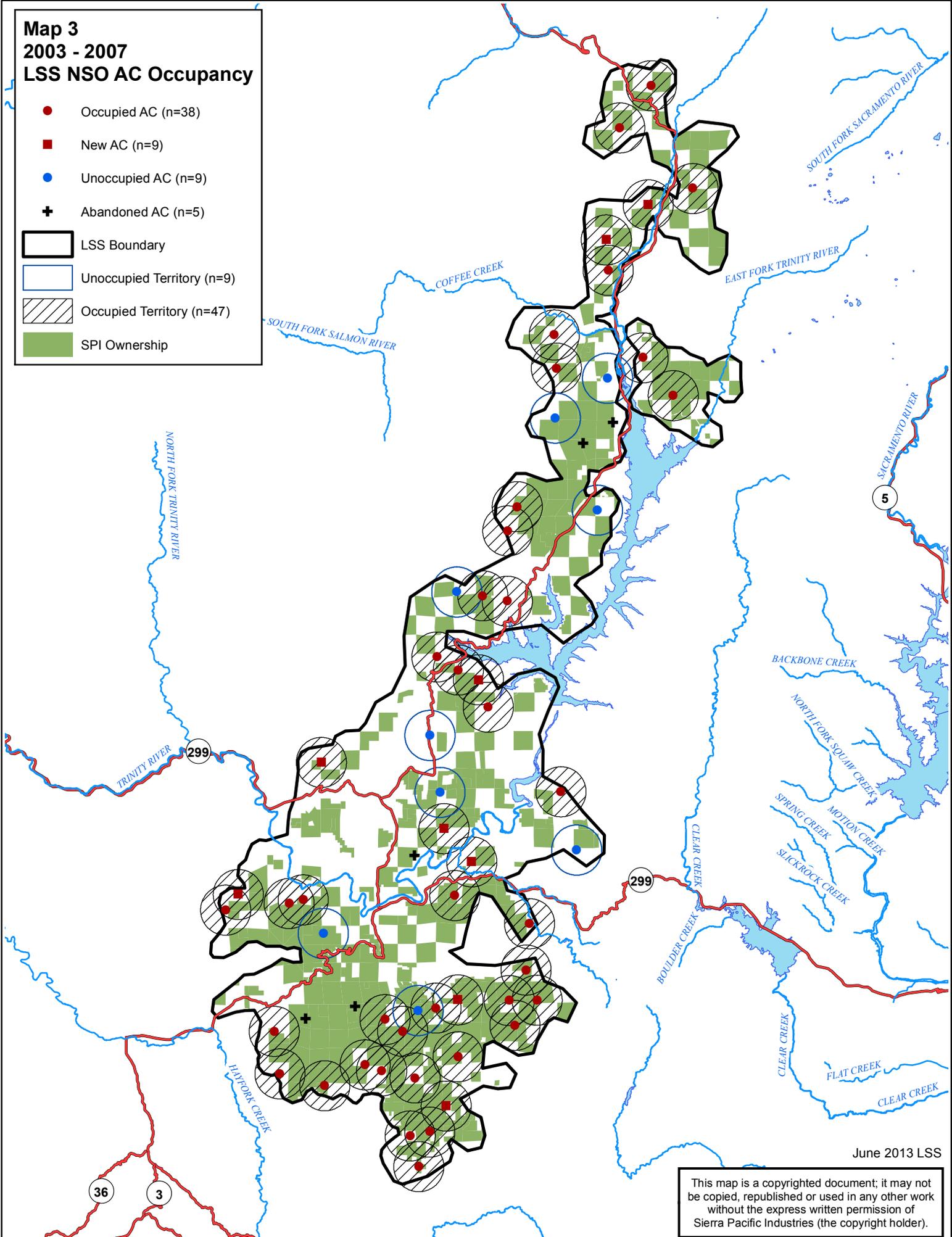


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**Map 3**  
**2003 - 2007**  
**LSS NSO AC Occupancy**

- Occupied AC (n=38)
- New AC (n=9)
- Unoccupied AC (n=9)
- + Abandoned AC (n=5)
- LSS Boundary
- Unoccupied Territory (n=9)
- Occupied Territory (n=47)
- SPI Ownership

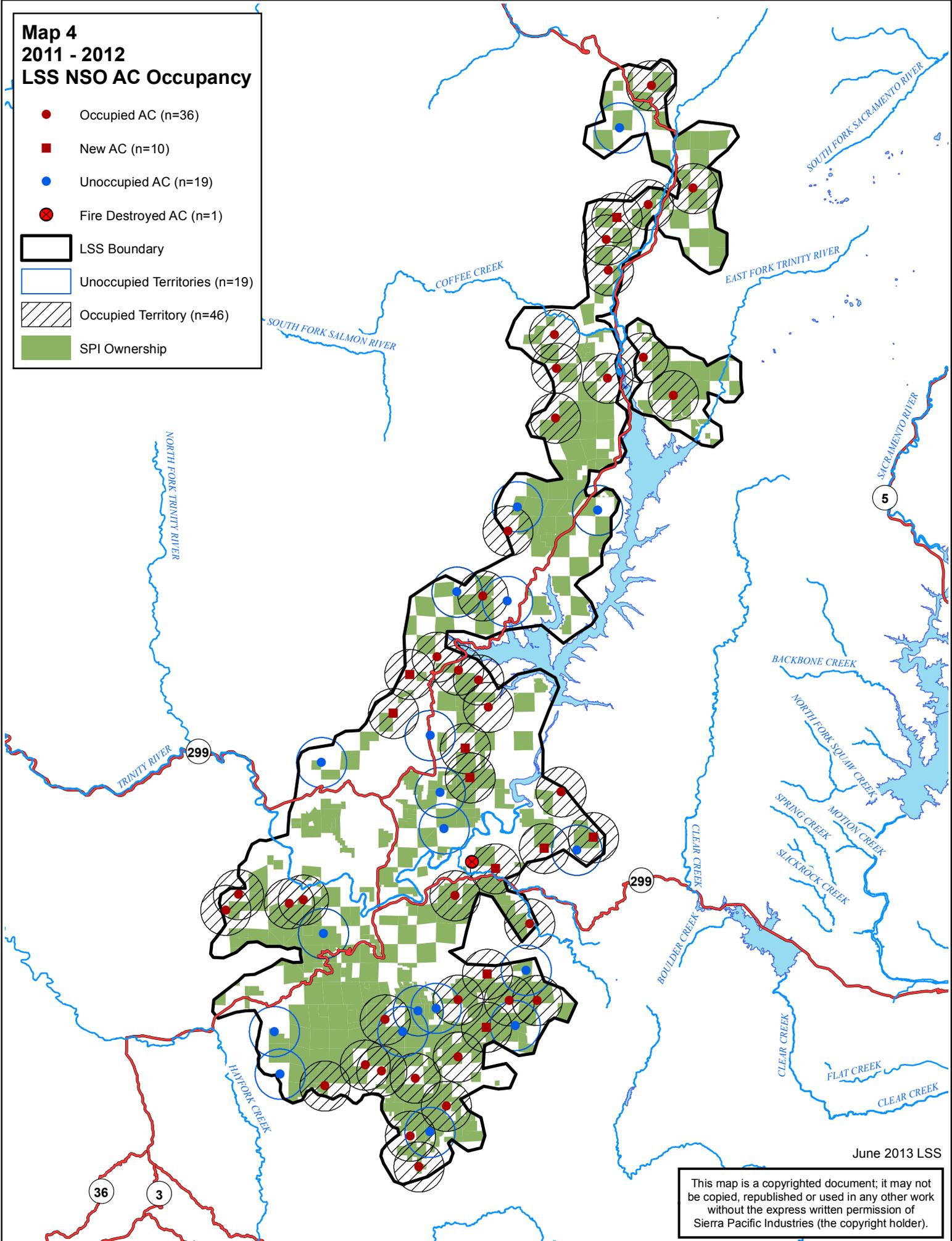


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**Map 4**  
**2011 - 2012**  
**LSS NSO AC Occupancy**

- Occupied AC (n=36)
- New AC (n=10)
- Unoccupied AC (n=19)
- ⊗ Fire Destroyed AC (n=1)
- LSS Boundary
- Unoccupied Territories (n=19)
- Occupied Territory (n=46)
- SPI Ownership

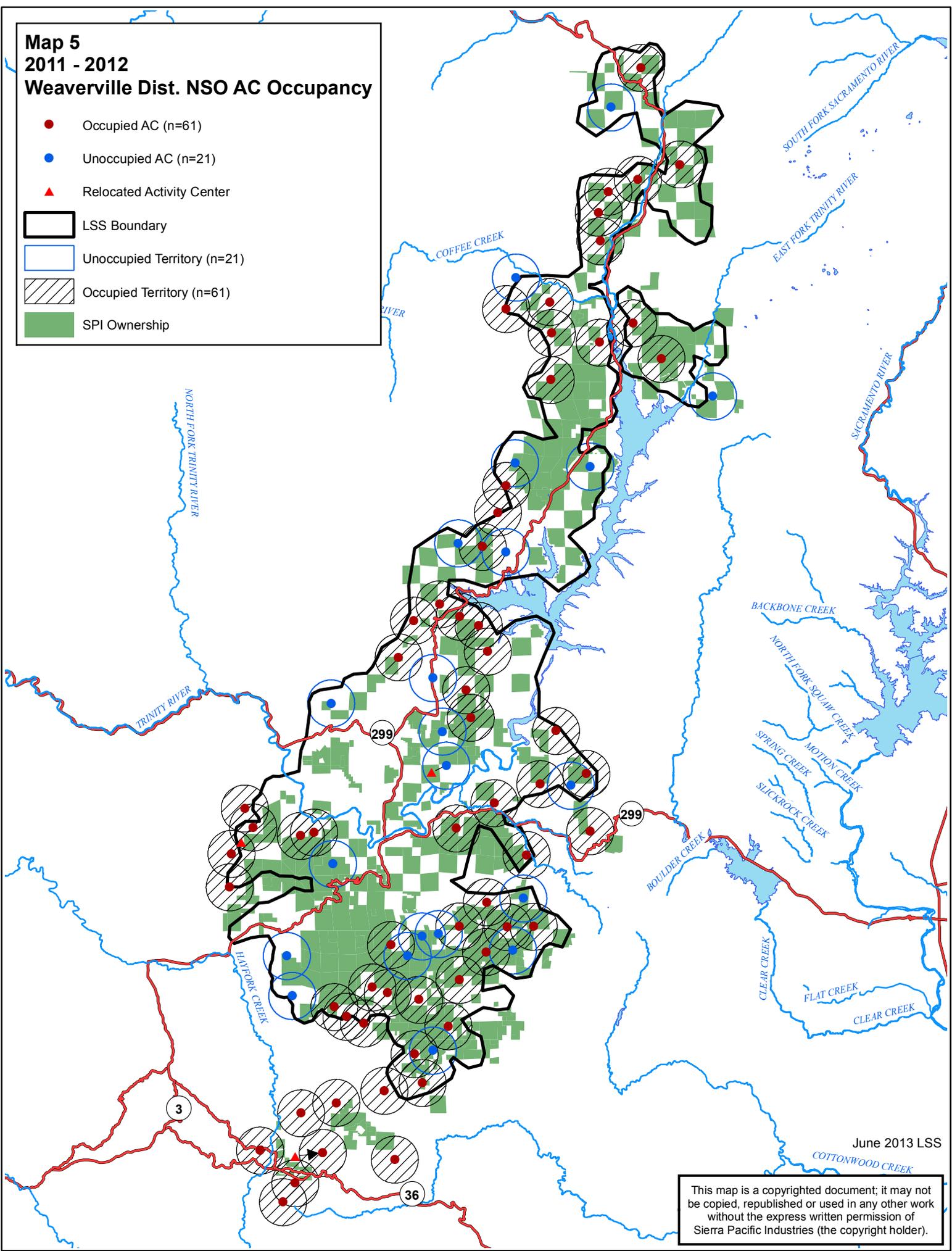


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**Map 5**  
**2011 - 2012**  
**Weaverville Dist. NSO AC Occupancy**

- Occupied AC (n=61)
- Unoccupied AC (n=21)
- ▲ Relocated Activity Center
- LSS Boundary
- Unoccupied Territory (n=21)
- Occupied Territory (n=61)
- SPI Ownership



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