

FINAL PERFORMANCE REPORT



Federal Aid Grant No. F20AP00049 (E-21-R-24)

**Red-cockaded Woodpecker Recovery
on the McCurtain County Wilderness Area**

Oklahoma Department of Wildlife Conservation

April 1, 2020 through September 30, 2021

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State: Oklahoma

Grant Number: F20AP00049 (E-21-R-24)

Grant Program: Endangered Species Act Section 6

Grant Title: Red-cockaded Woodpecker Recovery on the McCurtain County Wilderness Area

Grant Period: April 1, 2020 – September 30, 2021

Principal Investigator: Curtis Tackett, Oklahoma Department of Wildlife Conservation

Abstract:

Recovery efforts were conducted for the Red-cockaded Woodpecker (*Picoides borealis*, RCW) population on the McCurtain County Wilderness Area (MCWA) in accordance with the 1991 MCWA Management Plan and the U.S. Fish and Wildlife Service's guidelines (USFWS 2003). As of May 2021, the number of active RCW clusters on the MCWA and adjacent Ouachita National Forest (ONF) tract was seventeen (17), including three (3) clusters that did not exhibit nesting. The number of potential breeding groups (PBGs), or those composed of at least one male and one female, was 17 during the reporting period. Throughout the year, cavities (both natural and artificial) were serviced and cleaned periodically to maintain their suitability for RCW occupation. PBGs were monitored at least weekly during the nesting season (April 15 – June 15) of 2020 but only April and May during 2021 due to staff shortages. During the 2020 nesting season, 17 PBGs nested, with 55 eggs laid and 33 hatched. Twenty seven (27) nestlings successfully fledged. During the 2021 nesting season, 17 PBG's nested, with 53 eggs laid and 31 hatched. No translocations occurred during 2020 or 2021 due to COVID-19.

Background:

In Oklahoma, the last known population of Red-cockaded Woodpeckers (RCWs) resides within both the state-owned McCurtain County Wilderness Area (MCWA) and an adjacent tract of the Ouachita National Forest (ONF) that borders the western edge of the MCWA (see Appendix Figure 5). The narrow range of suitable habitat for this species is limited to mature pine woodlands and savannahs. In the Ouachita Mountains, which comprise the northwestern most extension of its range, the RCW is found in mature shortleaf pine woodlands with a grassy understory dominated by bluestem species (*Andropogon* sp.). Over the past century, the RCW population in the Ouachita Mountains has declined as a result of habitat degradation. Widespread logging in the early part of the twentieth century eliminated many of the mature pine stands which supported RCW clusters. Through the rest of the century, the remaining pockets of mature pine habitat declined in quality as a result of fire suppression and the subsequent increase in mid-story vegetation. The population on the MCWA declined from approximately 28 active clusters in 1977 (Wood 1977) to 15 in 1990 (Kelly et al. 1994). Since 1992, the Oklahoma Department of Wildlife Conservation has been implementing a management plan to recover the Red-cockaded Woodpecker population on the area and the surrounding portions of the Broken Bow Unit of the ONF.

Despite intensive population management and habitat restoration, population growth has been extremely slow and limited in Oklahoma. Throughout its range, several studies have determined that the RCWs require living, mature (> 60 years of age) pine trees infected with Red Heart fungus for cavity excavation (Jones & Ott 1973, Jackson 1977, Conner & O'Halloran 1987). While a sufficient number of suitable trees appear to be present on the MCWA, other constraining factors may exist that limit population growth and expansion. Research is needed to determine the limiting factors acting on this population. In addition to population monitoring and habitat restoration, ODWC is examining how weather variables affect the timing and overall success of nesting in the northwest edge of their occupied range. Results of such analyses could greatly inform management and recovery for this species in the Ouachita Mountains ecoregion.

Objectives:

The following goals have been outlined for this segment:

- 1) Continue to monitor the number of active clusters within the Oklahoma population, including accounting for reproductive activity, nesting success, group size, and cluster (stand) use on both the MCWA and adjacent Ouachita National Forest with the eventual goal of reaching the long-term goal 45 active clusters across the entire MCWA. Particular emphasis will be placed on the northwest portion of the MCWA where the majority of active territories exist.
- 2) Coordinate with the U.S. Fish and Wildlife Service, U.S. Forest Service, and other agencies participating in the Western Range Translocation Cooperative (WRTC) to continue to remain eligible for future augmentations from donor populations on USFS lands. Release sites for the establishment of translocated sub-adult birds will be selected based upon their close proximity to currently active RCW territories to maximize the chances of success.
- 3) Attempt to determine the factors that influence both habitat selection and reproductive success of Red-cockaded Woodpecker in the Ouachita Mountains using a combination of datasets, with the ultimate goal of understanding the limiting factors acting upon this species in the northwest periphery of its range.
- 4) Continue to mechanically remove hardwood trees, stump re-sprouts, and dense stands of small pines on areas in and around both active RCW clusters and recruitment stands as supplement to the currently implemented 3-year prescribed fire return interval that has been in place since 1991.

Procedures:

Population Monitoring

Red-cockaded Woodpecker (RCW) Potential Breeding Groups are usually checked on (or close to) April 20th to determine if nests have been initiated (determined by day first egg is laid). RCW nestlings are banded to obtain data on production changes, dispersal, and mortality and to aid in identification of single bird clusters that may be suitable for future augmentations. Nestlings are typically leg-banded at seven (7) days of age with a U.S. Geological Survey metal band and a combination of colored plastic bands on both legs. At day 26 of nestling age, brood checks are made at nesting clusters to determine how many have successfully fledged.

Cluster Stand Management

New cavity trees, when located, are tagged and mapped. The status of cavity trees and clusters are determined at least twice annually, including immediately prior to each nesting period. The density of hardwood mid-story and understory trees is reduced as needed within a 10-acre block surrounding each active cluster. Hardwood mid-story trees within each cluster stand are controlled by both mechanical cutting and prescribed fire (prescribed burns were conducted under a separate grant funded through the Wildlife Restoration Act program).

Recruitment Stand Management

Recruitment clusters are developed and maintained in portions of the Wilderness Area within 1/4 mile to one mile of active clusters, and each recruitment stand is provisioned with at least three artificial cavity inserts. Recruitment stand locations are in areas where the habitat within and surrounding each recruitment stand is as similar as possible to the habitat found at the active clusters.

Corridors

Where needed and feasible, corridors are developed and maintained between clusters and recruitment stands.

Restrictors and Predator Guards

Restrictor plates are placed on RCW cavities to prevent enlargement by other woodpecker species (e.g. Pileated) and to rehabilitate previously enlarged cavities. Predator guards are installed and maintained on all active cavity trees. Southern Flying Squirrels (*Glaucomys volans*) and other species that may usurp RCW cavities are removed as they are discovered during bi-monthly cavity checks.

Artificial Cavities

Cavity inserts are installed in active cluster stands to provide at least five usable cavities at each site. Each recruitment cluster contains a minimum of three artificial inserts; upon activation by dispersing RCWs, two or three additional inserts are installed.

Population Augmentation via Translocations

Through the multi-agency group called the RCW Western Range Translocation Cooperative (WRTC), translocations are implemented to both help bolster small populations of Red-cockaded Woodpeckers and maintain genetic diversity. The WRTC holds an annual meeting each August. Within the network, “donor” populations give hatch year RCWs to “recipient” populations to increase small and isolated population numbers. Birds to be translocated are identified within donor populations for several weeks prior to capture and are typically hatch year birds that are “floaters”, or young birds that have left their natal cluster but have not yet established themselves into a territory. Males and females are then paired up by the recipient and released into recruitment stands outfitted with artificial cavity inserts. In addition to releasing pre-paired RCWs, single bird clusters (usually a single male on territory) are identified and females from donor populations may be translocated in an effort to complete pairs at those clusters.

The WRTC maintains a translocation schedule and recipients usually wait in a “rotation” to receive birds from donor populations. However, this is contingent upon both the availability of suitable birds in donor populations and U.S. Fish and Wildlife Service approval. Juvenile pairs may also be translocated to the MCWA when population conditions (such as population declines)

warrant and when RCWs are available to move from donor populations. The two primary donor populations for Oklahoma include the Sam Houston National Forest in Texas and the Kisatchie National Forest in Louisiana.

Results and Discussion:

Population Monitoring

During the 2020 nesting season, there were seventeen (17) active clusters, of which 17 were Potential Breeding Groups (PBGs). Fourteen (14) PBGs initiated nests in 2020. A total of 55 eggs were laid, of which 33 hatched. A total of 27 chicks were banded (14 male, 13 female) and all 27 were placed on the monitoring schedule (Appendix Figure 1).

During the 2021 nesting season, there were seventeen (17) active clusters, of which 17 were Potential Breeding Groups (PBGs). Seventeen (17) PBGs initiated nests in 2021 and fourteen (14) of those exhibited eggs hatched. A total of 53 eggs were laid, of which 31 hatched. A total of 22 chicks were banded and 12 fledged (3 male, 7 female, and 2 unknown sexes) and all 12 were placed on the monitoring schedule (Appendix Figure 2).

Cluster Stand Management

During the reporting period, the total number of active clusters was 17 (Appendix Figures 1-3). The table in Appendix Figure 3 has been updated to reflect 2021 cavity tree status data. All usable natural cavities at active and inactive clusters have been restricted at the cavity entrances with metal plates that prevent destruction of entrances by species such as Pileated Woodpeckers. Active cavity trees are also outfitted with 2-3 foot sections of aluminum flashing that serve as predator guards to protect against climbing species such as ratsnakes (*Pantherophis* sp.). Cavity inserts were maintained at both currently active and unoccupied recruitment stands in preparation for future RCW territorial establishment via natural dispersal.

Habitat Management

- *Hardwood Mid-story Thinning and Corridors*
No additional corridors to connect clusters and recruitment stands were developed during this grant period. Mechanical thinning of mid-story hardwood vegetation within and immediately surrounding active cavity trees continued as a supplement to prescribed fire treatment on the MCWA. This was limited to selective removal of a few individual trees within active clusters. Chainsaw crews were not contracted during this grant report period.
- *Prescribed Burning*
Approximately 4,156 total acres (972 on Ouachita National Forest lands) was jointly burned during March 2020 between ODWC and the U.S. Forest Service. This cooperative burn with the USFS was on the east side of the area and encompassed all 7 of the active clusters on that portion of the area. See attached map (Figure 4) in the Appendix.
Approximately 7,188 total acres (1312 on Ouachita National Forest lands) were jointly burned during March 2021 primarily on the east side of the area between ODWC and the U.S. Forest Service. See attached map (Figure 5) in the Appendix.

Translocation

No translocations were conducted during 2020 or 2021 because of COVID-19 human health and travel restrictions.

Other Information

*For the reporting time period, the area manager was by himself without the assistance of a technician from Feb 2020- Sept. 2020. The area manager also was staff limited throughout a substantial period of time during 2021 from June – September. The only cavity tree monitoring (post-nesting) occurred at Eagle Nest and C205.

Much of the manager's time was consumed by recovering from the April tornado. Roads and trails on both sides of the area were covered in uprooted trees and many stretches of the east side roads weren't cleared until the fall of 2020. The RCW work was limited to cleaning cavities in preparation for nesting season and working the nesting season. We had 17 potential breeding groups (PBG's) this season, which is an increase of 3 from 2019. The area manager monitored eggs laid, eggs hatched, banded chicks and conducted fledge checks. Fledge checks revealed 27 fledglings, the highest we have encountered in at least 15 years.

C20: During April nesting checks we found a new (N) start tree near this year's nest tree. The new (N) was active by March of 2021 (added restrictor and flashing)

C202: A small tornado hit the evening of April 12th and caused a large blow down event within the cluster. Fortunately there were no cavity trees uprooted, but the trails are covered and many potential (future) cavity trees were lost. The storm did open up the cluster some and could possibly be beneficial in the upcoming years.

C16: Cluster 16 also suffered a large blow down event that covered many access trails with debris. No cavity trees were lost, and again it open up the cluster location and it may be beneficial for upcoming years

Cavity tree mortality: C111 lost 2 older (N)'s- one to wind breakage, and one unknown; the Eagle Nest cluster lost a mature (N) cavity tree, mortality reason unknown; the Forest Service 1 cluster lost it's only (N) cavity tree which served as the nest tree in the spring of 2020 (unknown reason) and Cluster 300 had a newer (I) tree uprooted from the tornado.

Restrictors: Added 1 restrictor to new (N) at C20

Flashing: Added flashing to the new cavity tree at C20

Flying Squirrels: Removed 32 squirrels from 17 active clusters, 10 from 5 R-stands during 2020.

R-stands: there are approximately 16 (serviceable) stands (not including inactive stands 24 and 32) and there are approximately 52 cavities with these stands.

Inactive stands: AC 24-5 cavities, AC 32-3 or 4 old cavities.

ODWC staff attended the virtual 2021 Western Zone RCW Meeting during August and provided a PowerPoint presentation with the nesting and cluster data for the 2021 season.

Recommendations:

Due to the high ODWC prioritization of recovery efforts for Red-cockaded Woodpeckers, this project will likely continue beyond the current grant segment until such time as the population attains the MCWA management plan goal of 45 active clusters. Even if the population goal of 45 territories is achieved, continued habitat management and population monitoring will be required in perpetuity if RCWs are to persist on the MCWA and surrounding Oklahoma Ranger District of

the Ouachita National Forest.

Significant Deviations:

No significant deviations.

Equipment Purchased:

None.

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Date Prepared: November 15, 2021

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Appendix

Figure 1. 2020 Red-cockaded Woodpecker Nesting Dates and Schedule, McCurtain Co., Oklahoma.

NESTING DATES AND SCHEDULE

YEAR 2020

CLUSTER	NEST INITIATION	CLUTCH COMPLETE	PROJECTED HATCH	AH	AH + 7 DAYS	POST BANDING CHECK	AH + 19 DAYS	MONITORING SCHED.
				ACTUAL HATCH	BANDING DATE		FLEDGING CHECK	
2	4-24-20 1 egg	4-30-20 4 eggs	5-11-20	5-11-20 3 chicks	5-18-20 Banded 3		5-29-20 1M & 1F	2 chicks
5	5-2-20 5-5-20 3 eggs	5-6-20 3 Eggs	5-17-20	5-17-20 2 chicks	5-24-20 Banded 2		6-5-20 2 M's	2 chicks
16	5-2-20 5-5-20	5-6-20 3 Eggs	5-17-20	5-17-20 1 chick	5-24-20 Banded 1		1 M	1 chick
25	4-30-20	5-4-20 4 Eggs	5-15-20	5-17-20 3 chicks	6-24-20 Banded 2		6-5-20 2 F's	2 chicks
20	Missed initiation 4-30-20	5-18-20 4 eggs	5-21-20 2 chicks	5-29-20 2 chicks	6-6-20 Banded 2		6-17-20 1M & 1F	2 chicks
37	4-30-20	5-4-20 4 Eggs	5-15-20	5-15-20 2 chicks	5-22-20 2 chicks		6-4-20 2 M's	2 chicks
ES1	5-4-20 5-5-20 1 Egg	5-8-20 4 Eggs	5-19-20	5-20-20 3 or 4?	5-27-20 Banded 3		6-10-20 1M & 1F	2 chicks
EN1	5-4-20 1 Egg	5-7-20 4 eggs	5-18-20?	5-18-20 3 chicks	5-19-20 Banded 3		5-29-20 2 M's	2 chicks
109	No nesting found							
111	No nesting found							
112	5-11-20	5-15-20 4 Eggs	5-27-20 2 chicks	5-27-20 2 chicks	6-3-20 Banded 2		6-16-20 1M & 1F	2 chicks
202	5-1-20	5-5-20 4 Eggs	5-16-20 2 chicks	5-18-20 2 chicks	5-23-20 Banded 1		6-5-20 1 F	1 chick
205	4-21-20	4-25-20 4 eggs	5-6-20	5-6-20 4 chicks	5-13-20 Banded 3		5-26-20 1M & 2F's	3 chicks
210	3?	5-30-20	Found 3 chicks near Fledge age - to large to band				6-5-20 1M & 2F's	3 chicks
1201	5-1-20 4 Eggs	5-5-20 4 eggs		5-9-20 1 chick	5-14-20 Banded 1		5-30-20 1 F	1 chick
300	4-24-20 1 Egg	4-30-20 4 eggs	5-11-20	5-11-20 2 chicks	5-18-20 Banded 2		5-31-20 1M & 1F	2 chicks
Totals				FS East - 2 Birds - no nesting observed!				
				53 eggs	33	27	14M; 13F	27

Nest Initiation- From April 20 check all active cavities weekly.
 Clutch Complete- Check 4 days following initiation. If 3 eggs, check every 2 days until nest contains 4 eggs or 4 days have elapsed. Record number.
 Projected Hatch - Check at projected date (after about 11 days of incubation) . If not hatched, check daily.
 Actual Hatch- Date of actual hatching. Record number hatched.
 Projected Banding Date- Band nestlings at 7 days of age.
 Post Banding Check- Check number and condition 1 to 2 days after banding.
 Fledging Check- Check number and, if possible sex, at 19 to 20 days of age.
 Actual fledging occurs at 24 TO 26 days.

Figure 2. 2021 Red-cockaded Woodpecker Nesting Dates and Schedule, McCurtain Co., Oklahoma.

Cluster #	Eggs Laid	#Hatched	#Banded	#Fledged	#M-Fledge	#F-Fledge	Unk. Sex
300	4	3	2	2	1 M	0	1
2	4	2	2	Chicks Gone?			0
205	4	4	Not banded	2		2 F	0
109	No Nesting Found			0	0	0	0
25	4	3	3	Gone - Feathers & maggots			0
112	No Nesting Found			0	0	0	0
111	No Nesting Found			0	0	0	0
37	4	Eggs	Gone	0	0	0	0
FS 1	4	1	1	1	0	1 F	0
East FS	3	No Hatch	0	0	0	0	0
Eagle Nest	4	4	Not banded	4	1 M	2 F	1
5	4	3	3	Gone?	0	0	0
202	4	2	2	2	0	2 F	0
1201	4	3	3	1	1 M	0	0
20	4	2	2	Gone?	0	0	0
16	4	2	2	Gone?	0	0	0
210	4	2	2	Gone?	0	0	0
Total	55	31	22	12	3 M	7 F	2

Figure 3. Cavity Tree Status on the McCurtain Co. Wilderness Area and adjacent Oklahoma Ranger District of the Ouachita National Forest, Oklahoma (as of May 2021 nesting season).

Cluster (Stand) Number	Natural Cavities		Artificial Inserts	
	Active	Total	Active	Total
2	1	1	2	4
109	2	3	1	5
111	4	5	0	1
112	4	5	0	3
37	5	6	0	4
205	3	3	0	2
25	0	0	4	5
FS 1	1	1	3	5
FS East	0	1	3	4
300	0	0	2	3
5	2	3	1	3
20	3	3	1	4
202	0	1	3	5
Eagle Nest	2	3	1	2
1201	1	2	1	3
16	2	2	1	1
210	2	2	2	5

Figure 4. 2020 Cooperative Prescribed Burn on East side of Area with USFS

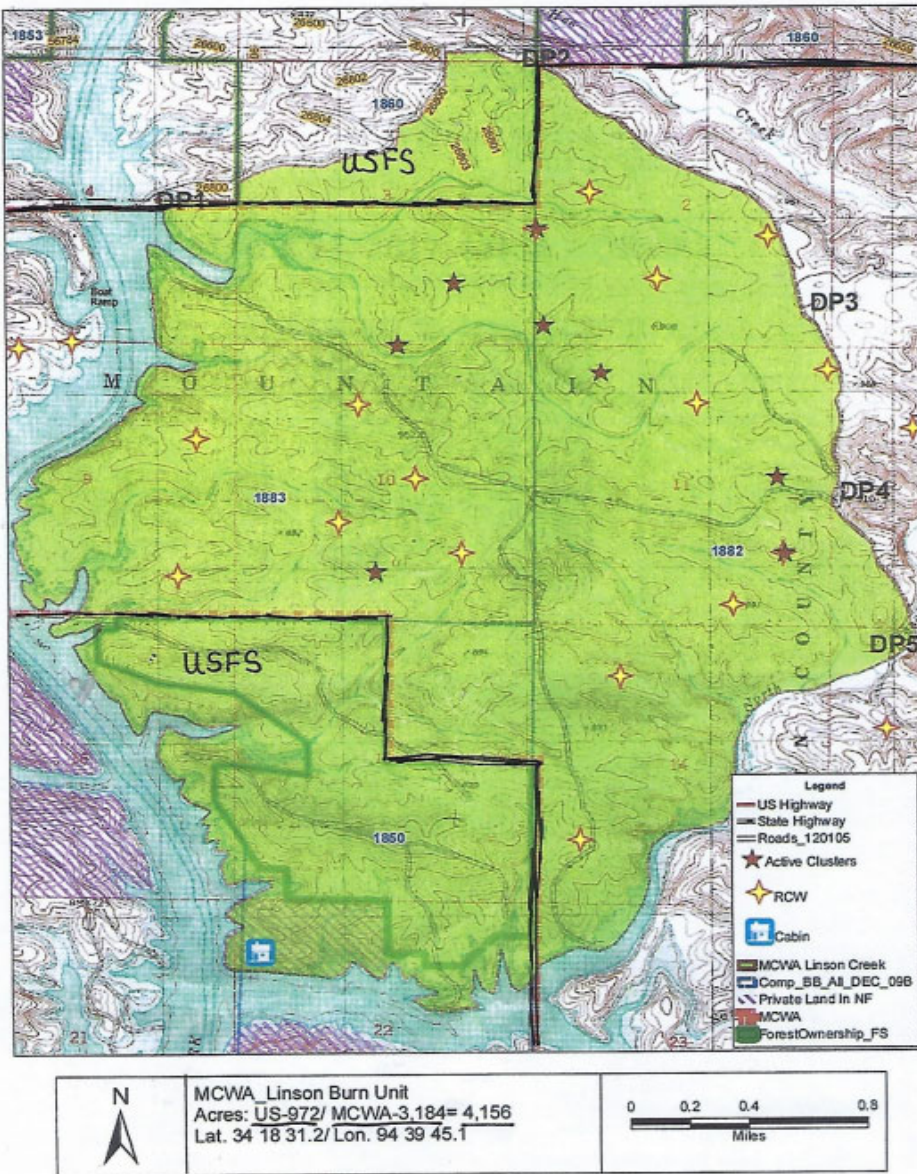


Figure 5. 2021 Prescribed Burn Map for MCWA and USFS properties

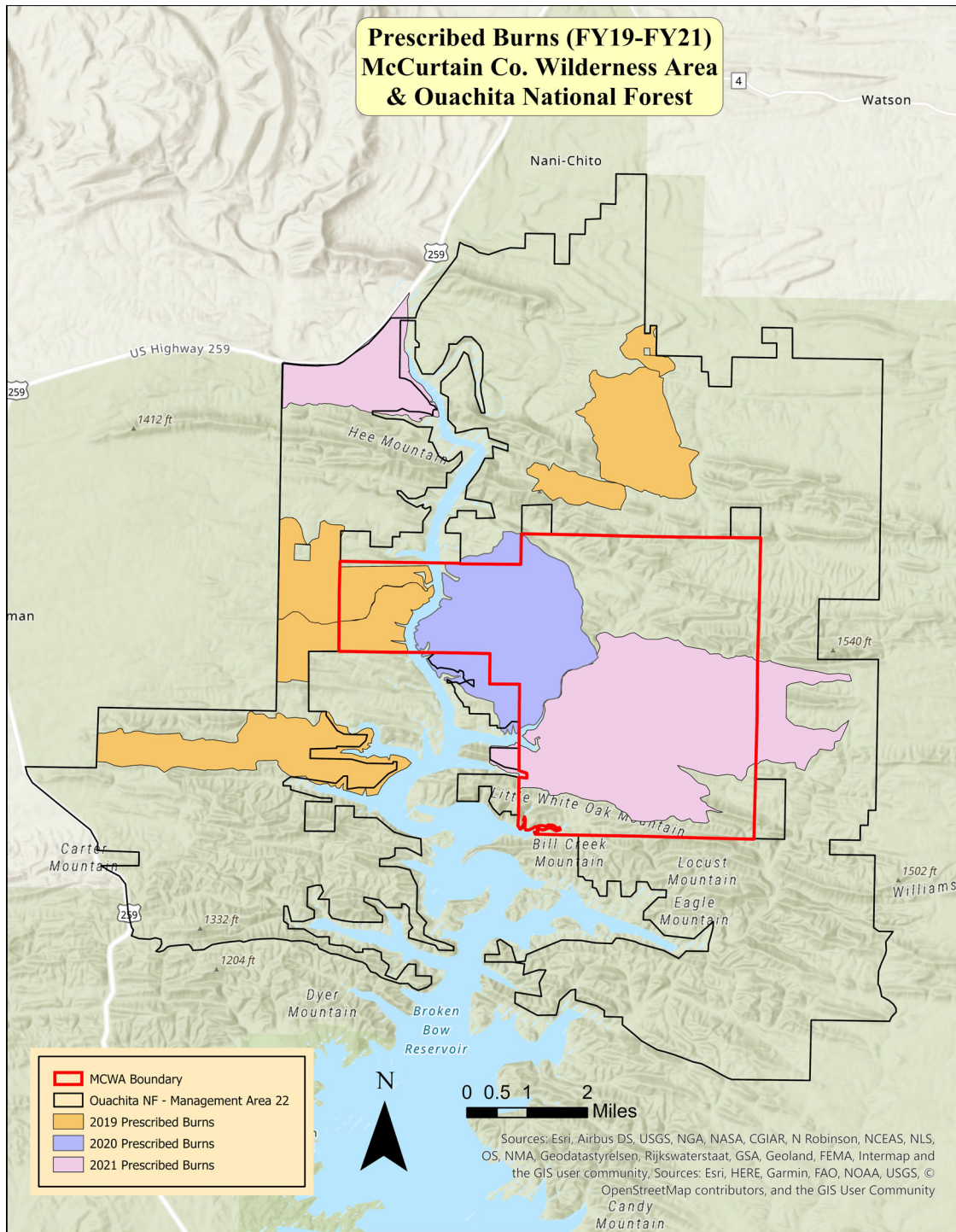


Figure 6. 2021 Active RCW Clusters and Recruitment Stands

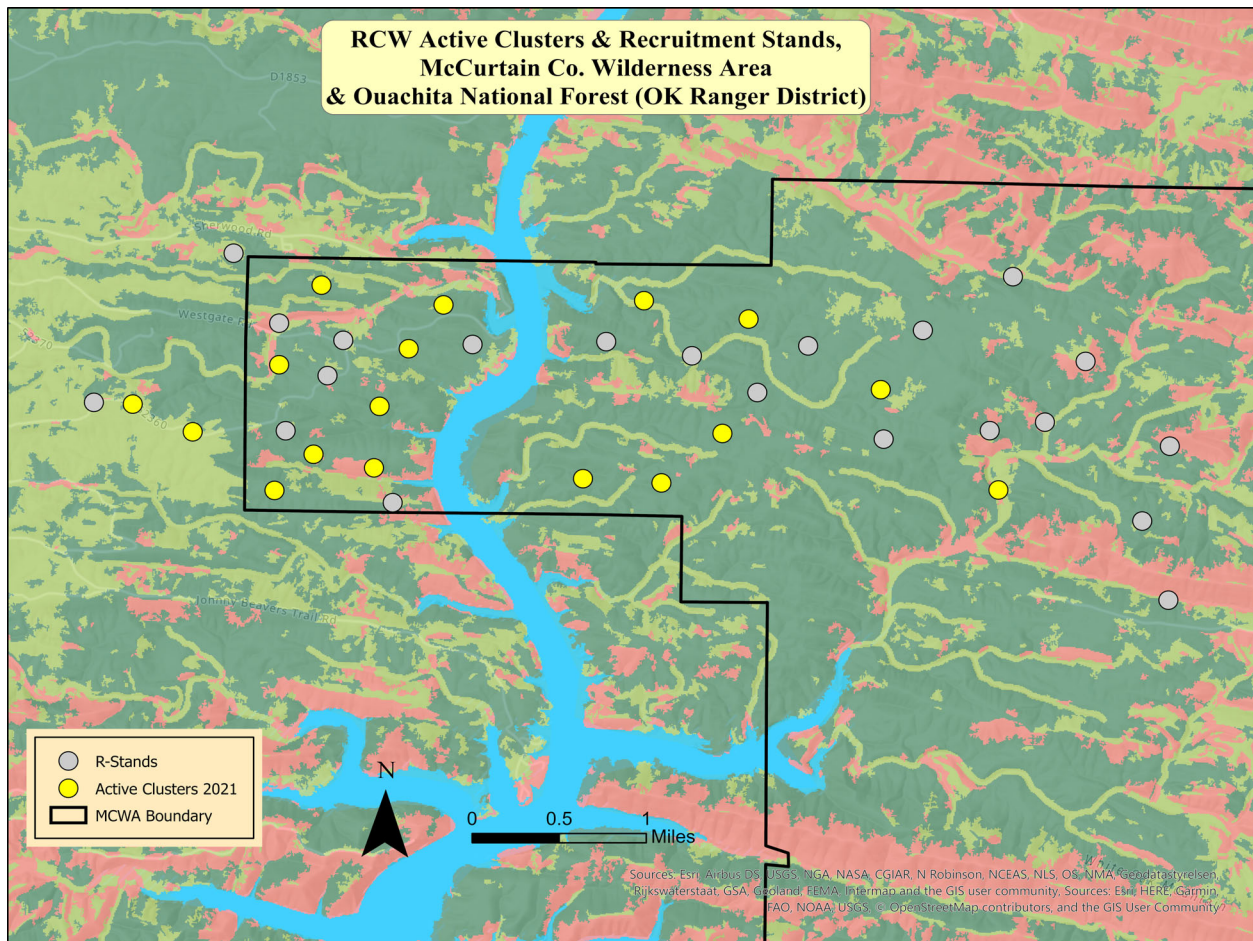


Figure 7. RCW Fledgling Trend (2014-2021)

