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Dragonflies (Odonata) of the Ouachita National Forest

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Abstract

The Ouachita National Forest (ONF) was established in 1907 and encompasses 1.8 million acres (728,450 ha) in Arkansas and Oklahoma, almost entirely within the Ouachita Mountains Natural Division. The adult dragonfly species richness, seasonal and spatial distribution, and relative abundance were surveyed during 2002. Fifty-four collections were made at 43 sites during 10-19 May (20 collections), 10-22 July (19 collections) and 9-17 September (15 collections). Literature records were searched, as well as records from pertinent museums and individuals. Eighty-three species are reported here for the ONF, 77 of which were collected during 2002. *Nehallenia integricollis* is newly reported for Arkansas, as are several species for the six Arkansas and two Oklahoma counties that encompass the ONF. The species richness results from a diversity of aquatic habitats, particularly within the Caddo Ranger District. Plastic species (e.g. *Plathemis lydia*) typically are widely distributed and have long flight seasons. More specialized species (e.g. *Ophiogomphus westfalli*) often are quite restricted in both distribution and flight season. Maintenance of good water quality in all aquatic habitat types will ensure species richness for dragonflies and the invertebrates upon which they feed.

Introduction

All life has value, and genetic diversity should be conserved (Moore, 1997). Biodiversity surveys are one response to this realization. Their size, intricate coloration and incredible aerial acrobatics have made dragonflies specific subjects of the folklore of countries such as China and Japan, as well as Native Americans, for whom odonates are often the subjects of art and poetry (Moore, 1997). Because of their aerial maneuverability, dragonflies have prompted considerable study by aeronautical engineers, often funded by the U.S. Air Force or similar agencies (Moore, 1997). Their size facilitates biological research, particularly in behavioral and ecological studies. They have potential as bio-indicators, because species differ both in their preference for specific habitats and their sensitivity to various types of pollutants. Finally, dragonflies eat prodigious numbers of insects that are harmful to man's food supplies, forests (e.g. moths), and health (e.g. mosquitoes as vectors) (Moore, 1997).

Description of the Area.--The Ouachita Mountain Natural Division, lying entirely within Arkansas and Oklahoma, was formed by uplifting, folding, and faulting processes during the Pennsylvanian Period approximately 300 mya. These mountains are a series of long, narrow ridges with east-west axes. The ridges are separated by wide valleys, each drained by a river or stream. Principle geologic formations in these Mountains are Paleozoic sedimentary sandstone and shale ranging in age from Cambrian or Ordovician through Pennsylvanian, which were warped, twisted and folded under tremendous pressure. Soils are derived from shale and sandstone, with recent alluvium in the bottomlands of the main rivers. Shortleaf pine, upland hardwood and bottomland hardwood forests predominate (Robison and Buchanan, 1988). Water hardness, alkalinity, and pH all tend to be relatively unbuffered.

The Ouachita National Forest (ONF), the South's oldest and largest national forest, was established in 1907 and encompasses 1.8 million acres (728,450 ha), almost entirely within the Ouachita Mountain Natural Division. The ONF is managed through 12 ranger districts, nine in Arkansas and three in Oklahoma. These districts range in area from 118,921 (Winona) to 194,551 (Mena) acres (48,127-78,731 ha). Mean rainfall varies among districts, but the Caddo Ranger District receives the greatest amount.

The primary purpose of this survey was to establish a biodiversity list for dragonflies of the ONF. Secondary goals were to determine the seasonal occurrence, relative abundance and preferred habitat for at least the more common species. Finally, several areas heavily damaged by southern pine beetles were surveyed to determine extent of dragonfly utilization.

Materials and Methods

Fifty-four collections were made at 43 sites within the ONF during 2002 (Table 1). Collections were distributed seasonally, during 10-19 May (20 collections), 10-22 July (19

collections), and 9-17 September (15 collections). Voucher specimens are housed in the Adult Odonata Collection of the Arkansas State University Museum of Zoology (ASUMZ). Additionally the ASUMZ was searched for previous collections from the ONF. Records were also acquired from the Florida State University Collection of Arthropoda (FSCA) through Bill Mauffray. Literature records were searched. Finally, personal records from John Abbott (University of North Texas), Sidney W. Dunkle (Collin Co. Comm. College, Plano, TX), and Roy J. Beckemeyer (Wichita, KS) were acquired. These odonatists have collected extensively in the Ouachita Mountains.

Results and Discussion

Eighty-three species of dragonflies are reported here for the ONF (Table 2). Of these, 77 species were collected during 2002, while voucher specimens of six additional species are housed in the ASUMZ, FSCA, or private collections. The 83 species comprise 61% of the species known to occur in Arkansas (Harp and Harp, 1996; Westfall and May, 1996, Needham et al., 2000). The species richness results from a diversity of aquatic habitats (seeps, springs, ponds, lakes, creeks, and rivers), particularly within the Caddo Ranger District.

Nehalennia integricollis, collected at the retention pond immediately above Caddo Pond on 18 May, is reported for the first time in Arkansas. Several new records are reported for the six Arkansas counties in the ONF (Table 3). Montgomery County is particularly species rich for two related reasons. First, the Caddo Ranger District lies within southern Montgomery County. Second, because of its great diversity of aquatic habitats, this district has been more thoroughly collected than perhaps any other area of comparable size in Arkansas. *Ladona deplanata* is a new record for LeFlore Co., OK, as are *Ischnura ramburii* and *Arigomphus lentulus* for McCurtain Co., OK (R.J. Beckemeyer, pers. comm.).

Common species are often referred to as generalists, or plastic species, because they tolerate a wide range within many environmental parameters. The ability of their nymphs to survive relatively low dissolved oxygen (DO) concentrations is of primary importance. Because of this, they can inhabit a wide range of current speeds and are characteristically found in both lentic (standing water) and lotic (running water) habitats. For these species, moderate turbidity is not a problem. Their plasticity is reflected in the number of sites at which they were found in the ONF. Foremost among these species are *Erythemis simplicicollis* (34 sites), *Ischnura posita* (30), *Pachydiplax longipennis* (30), *Libellula incesta* (25), *Plathemis lydia* (24), and *Perithemis tenera* (19) (Table 2).

Other species are widespread and common because, in addition to their broad tolerance of environmental conditions, they are strong fliers and thus are better able to disperse widely. These species are represented in the ONF by *Anax junius* and *Tramea lacerata* (21 and 19 sites, respectively) (Table 2).

Plastic species often have a long flight season, in Arkansas extending perhaps from April through September (e.g. *Ischnura posita*, *Erythemis simplicicollis*, *Plathemis lydia*). Other species, although they may be common as revealed by the presence of their nymphs, are not found as adults as often because of their short flight seasons, usually in the spring or fall. Typical spring fliers, found almost exclusively during the May samples in this study, include *Basiaeschna janata* (springtime darner), *Gomphus ozarkensis*, *Gomphus oklahomensis*, *Epitheca costalis*, *Epitheca cynosura*, *Ladona deplanata*, and *Libellula semifasciata* (Table 2). Fall fliers found in the ONF include *Boyeria vinosa*, *Sympetrum ambiguum* and *Sympetrum vicinum* (Table 2).

Species strongly adapted to either lentic or lotic habitats obviously will be less common than generalist species. Species characteristic of lentic habitats are typically more tolerant than those of lotic habitats, however. The latter tend to require at least some current but less turbid water, with concomitant higher DO levels. Because of this, stream species are somewhat better indicators of water quality. Strongly lentic species include *Lestes disjunctus australis*, *Enallagma aspersum*, *Enallagma traviatum*, *Anax longipes* and *Celithemis* spp. (Table 2) (Westfall and May, 1996). Strongly lotic species of the ONF include *Hetaerina americana*, *Argia sedula*, *Enallagma exsulans* (stream bluet), *Basiaeschna janata*, *Hagenius brevistylus* and *Stylogomphus* n. sp. (Table 2).

Seeps are sensitive habitats, usually small aquatic ecosystems with a substrate of organic mud is often present, which limits DO. Drought, recreational off-road vehicular use and/or land management practices, such as timber harvesting without adequate protective buffers, obviously are detrimental to their flora and fauna. Thus species adapted to this distinct habitat type are often uncommon. Species of the ONF in this habitat type include *Argia bipunctulata* (seepage dancer), and *Tachopteryx thoreyi*. Also included are *Cordulegaster obliqua* and *Cordulegaster* n. sp. *Cordulegaster* species characteristically inhabit woodland headwater streams, and these may originate at seeps. Currently, *Cordulegaster* n. sp. is known only from the Caddo Ranger District. This species is being described by Ken Tennessen, Florence, AL.

Argia plana (springwater dancer) is only found at springs or streams heavily influenced by springs. The lilypad forktail (*Ischnura kellicotti*) is quite unusual in that its lifecycle is closely associated with lily pads of the genera *Nuphar* and *Nymphaea* (Harp, 1983). Its distribution, therefore, tends to be disjunct, although it can be abundant locally. While *A. plana* was recorded from only one site in the ONF (Table 2), it should be widely distributed because of the abundance of springs and spring-fed streams. *Ischnura kellicotti* was

recorded from only one site in the ONF also. Lily pads occur quite infrequently in the ONF.

The Interior Highlands (Ozark Plateaus and Ouachita Mountains) support several endemic invertebrate species (Smith, 1984). Those endemic dragonflies found within the ONF include *Gomphus ozarkensis*, *Ophiogomphus westfalli*, and *Somatochlora ozarkensis*. Another endemic species occurring in the ONF, *Gomphus oklahomensis*, is known only from extreme eastern Texas, southeastern Oklahoma, southwestern Arkansas, and northwestern Louisiana. It inhabits mud-bottomed ponds, lakes, creeks and rivers (Dunkle, 2000).

Many *Neurocordulia* spp. (shadowdragons) are common, but the adults spend most of the day hanging from twigs in forested areas. They actively fly only at dawn and dusk, thus escaping the collecting efforts of most odonatists. The result is fewer records for them.

In recent years, the southern pine beetle (SPB) has caused particular damage within Arkansas pine-dominate forests. The most effective control of this pest includes quickly felling pine trees where the beetle is concentrated. These southern pine beetle spots are referred to as SPBs. Of 33 SPBs in the Caddo Ranger District, three were closed due to turkey nesting and three were inaccessible due to terrain. Of the 27 SPBs surveyed, 23 had no dragonflies on site. For six of these 23 sites 1-4 species were found on the access road, near the sites. Only four SPBs had dragonflies on the site proper (1-8 species, Harp and Harp, 2002). In all circumstances, dragonfly presence or absence was due to the presence, proximity or absence of water. A permanent stream bordered the SPB where eight species were found, all being at streamside. In most instances, the dragonflies present were generalists, i.e. the most hardy. The SPBs possessed no features that would encourage dragonfly utilization.

The most important requirement for dragonfly diversity is diversity of aquatic habitat. Seeps and springs are most sensitive, and they typically harbor the least common dragonflies. While dragonflies as a group (Odonata) are not as sensitive to water quality degradation as stoneflies or caddisflies, good water is important. Also of importance are shorelines with relatively shallow gradients. These tend to promote development of beds with diverse aquatic vegetation, which in turn function as oviposition and resting sites, as well as areas of warm, sunny water with good DO concentrations, all beneficial to dragonflies and the organisms upon which they feed.

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Literature Cited

Cook, C., and **J. J. Daigle.** 1985. *Ophiogomphus westfalli* spec. nov. from the Ozark Region of Arkansas and Missouri, with a key to the *Ophiogomphus* species of eastern North America (Anisoptera: Gomphidae). Odonatologica 14:89-99.

Dunkle, S. W. 2000. Dragonflies through binoculars: a field guide to dragonflies of North America. Oxford Univ. Press. 266 pp.

Harp, G. L. 1983. A preliminary report on the Zygoptera (Damselflies) of Arkansas. Proc. Arkansas Acad. Sci. 37:87-88.

Harp, G. L., and **P. A. Harp.** 1996. Previously unpublished Odonata records for Arkansas, Kentucky and Texas. Notul. Odonatol. 4(8):127-130.

Harp, G. L., and **P. A. Harp.** 2002. Dragonflies of the Ouachita National Forest. Final Report. 16pp. + app.

Harp, G. L., and **J. D. Rickett.** 1985. Further distributional records for Arkansas Anisoptera. Proc. Arkansas Acad. Sci. 39:131-135.

Moore, N. W. 1997. Dragonflies – Status survey and conservation action plan. IUCN/SSC Odonata Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK. v + 28 pp.

Needham, J. G., M. J. Westfall, Jr., and **M. L. May.** 2000. Dragonflies of North America. Scientific Publishers, Gainesville, Florida. 939 pp.

Robison, H. W., and **T. M. Buchanan.** 1988. Fishes of Arkansas. University of Arkansas Press, Fayetteville. 536 pp.

Smith, K. L. 1984. Animals. *In*: Shepherd, B. (Coord. Ed.) 1984. Arkansas's Natural Heritage. August House, Little Rock. 116pp.

Westfall, M. J., Jr., and **M. L. May.** 1996. Damselflies of North America. Scientific Publishers, Gainesville, Florida. 650pp.

Table 1. Collecting sites for Odonata, Ouachita National Forest, May-September 2002.

1. Shady Lake at Shady Lake Recreation Area, NE1/4Sec31, T4S, R28W, Polk Co., AR, 10 May (1a), 15 May (1b).

2. Wetland at NE corner of jct. US Hwy 270/FS 929, NW1/4Sec20, T1N, R28W, Scott Co., AR, 11 May (2a), 21 July (2b), 12 Sept. (2c).

3. Mill Creek at FS 929, NW 1/4Sec20, T1N, R28W, Scott Co., 11 May
4. Lake Hinkle at Little Pines Rec. Area, NE1/4Sec3, T2N, R31W, Scott Co., AR, 11 May (4a), 18 July (4b).
5. Cedar Lake North Shore, NE1/4Sec32, T4N, R25E, Le Flore Co., OK, 12 May.
6. Red Slough, E 1/2Sec25, T9S, R25E, McCurtain Co., OK, 13 May.
7. Mt. Fork River at The Narrows (FS 28000), E1/2Sec9, T2S, R25E, McCurtain Co., OK, 15 May (7a), 19 July (7b).
8. C-25 Pond, SE1/4Sec26, T3S, R23W, Montgomery Co., AR, 16 May.
9. Pond at end of FS C-25, NW1/4Sec36, T3S, R23W, Montgomery Co., AR, 16 May.
10. Beaver pond near Fancy Hill Lake, SW1/4Sec22, T4S, R26W, Montgomery Co., AR, 16 May (10a), 10-11 Sept (10b).
11. Fancy Hill Lake, SW1/4Sec22, T4S, R26W, Montgomery Co., AR, 16 May (11a), 10 Sept (11b).
12. Caddo Pond, SE1/4Sec19, T4S, R23W, Montgomery Co., AR, 18 May (12a), 12 July (12b), 9 Sept (12c).
13. Pond above Caddo Pond, SE1/4Sec19, T4S, R23W, Montgomery Co., AR, 18 May.
14. Caddo River 1mi SE of Caddo Gap, southcentral Sec19, T4S, R24W, Montgomery Co., AR, 18 May (14a), 10 Sept (14b).
15. FS 476, E1/2Sec22, T3S, R23W, Montgomery Co., AR, 17-19 May.
16. Stream paralleling FS 476 on the north, E1/2Sec22, T3S, R23W, Montgomery Co., AR, 19 May.
17. Collier Creek at Buttermilk Springs Rd., SE1/4Sec31, T3S, R24W, Montgomery Co., AR, 18 May (17a), 19 May (17b).
18. Seep 1mi E of Alamo, Sec151/4, T3S, R23W, Montgomery Co., AR, 19 May.
19. Caney Creek ~ 8km NNE of Glenwood, NW 1/4Sec 18, T4S, R23W, Montgomery Co., AR, 10 July.
20. C-12 Pond, NE 1/4Sec33, T3S, R22W, Garland Co., AR, 11 July.
21. East Fork Caney Creek, Sec18, T4S, R23W, Montgomery Co., AR, 11 July.
22. Meyers Creek along Co Hwy103, Sec16, T3S, R22W, Garland Co., AR, 12 July.
23. Mazarn Creek at St Hwy 227, SE1/4Sec15, T3S, R21W, Garland Co., AR, 14 July.
24. Mazarn Creek from Co Hwy 38 upstream ~ 400m, Montgomery Co., AR, 9 Sept.
25. Richardson Bottoms, on FS 37300, NE1/4Sec12, T1S, R23W, Montgomery Co., AR, 15 July.
26. Dutch Creek 0.4km N St Hwy 80, NE1/4Sec14, T1S, R23W, Yell Co., AR, 16 July.
27. Dutch Creek 0.4km N St Hwy 80, NE1/4Sec29, T4N, R25W, Yell Co., AR 16 July.
28. Southernmost lake of the Blue Moon Wildlife Demo Area (Keith's Pond), 11km W of Waldron, 1/8mi N St Hwy 248, SE 1/4Sec19/NE 1/4Sec30, T3N, R30W, Scott Co., AR, 16 July.

29. Westernmost lake of the Blue Moon Wildlife Demo Area (Moist Soils Wetland), 11km W Waldron, 1/4mi N St Hwy 248, SW1/4Sec 19, T3N, R30W, Scott Co., AR, 18 July.

30. Cedar Lake South Shore, NE1/4Sec32, T4N, R25E, LeFlore Co., OK, 19 July.

31. Cossatot River at FS 30 (Gillham Spgs), NW1/4Sec22, T4S, R30W, Polk Co., AR, 20 July.

32. Westernmost (larger) pond of Mauldin Ponds, N side of FS 37, SE1/4Sec4, T2S, R25W, Montgomery Co., AR, 22 July.

33. Easternmost (smaller) pond of Mauldin Ponds, N side of FS 37, SE1/4Sec4, T2S, R25W, Montgomery Co., AR, 22 July.

34. Camp Clearfork, incl. Clearfork Lake, spring branch at its upper end and Walnut Creek immediately below dam, NE1/4Sec6, T3S, R22W, Montgomery Co., AR, 22 July.

35. Unnamed trib. of South Fk Caddo R., N of C-99 Rd, NCSec29, T4S, R26W, Montgomery Co., AR, 11 Sept.

36. Jones Creek at FS Rd. 837, 1.3km below Lake Hinkle, NE 1/4Sec12, T2N, R31W, Scott Co., AR, 12 Sept.

37. Northernmost lake of the Blue Moon Wildlife Demo Area (Bee Tree Pond), 11km W Waldron, 1.6km N St Hwy 248, NE1/2Sec19, T3N, R30W, Scott Co., AR, 13 Sept.

38. Woodland Pond nr Bee Tree Pond, Blue Moon Wildlife Demo Area, 11km W Waldron, 1.6km N St Hwy 248, NW 1/4Sec19, T3N, R30W, Scott Co., AR, 13 Sept.

39. Fourche LaFave R. 2.9km WNW of Y City, SW 1/4Sec17, T1N, R29W, Scott Co., AR, 13 Sept.

40. Moss Creek Road Pond, N side of FS 159, SW 1/4Sec7, T4N, R24W, Yell Co., AR, 16 Sept.

41. Fourche LaFave R. at St Hwy 307, 3km S Briggsville, Yell Co., AR, 16 Sept.

42. Fourche LaFave R. at St Hwy 7, just below Lake Nimrod dam, SW 1/4Sec32, T4N, R20W, Perry Co., AR, 17 Sept.

43. Cove Creek Lake, FS 210, 9.6km SE Lake Nimrod dam, NW 1/4Sec18, T3N, R19W, Perry Co., AR, 17 Sept.

Table 2. Species list and distributions for Odonata, Ouachita National Forest.

Scientific Name	Common Name	Location
Calopteryx maculata	ebony jewelwing	1a**s*** 17a**s**, 19**s**, 22**s**, 24**s**, 31**s**, 34**s**, 35**s**
Hetaerina americana	American rubyspot	7a, 7b**s**, 14a**s**, 14b**s**, 17a**s**, 23, 31**s**, 36**s**, 41**s**, 42**s**
Archilestes grandis	Great spreadwing	Mazarn[ASUMZ]
Lestes disjunctus australis	common spreadwing	2a, 2b, 2c, 6, 8**s**
Lestes vigilax	swamp spreadwing	9, 10b
Argia apicalis	blue-fronted dancer	4b, 30**s**, 42, 43**s**
Argia bipunctulata	seepage dancer	18
Argia fumipennis violacea	variable dancer	5, 10b, 11b**s**, 30**s**, 32**s**, 33**s**, 34**s**, 36**s**, 38**s**, 39**s**, 40**s**, 41**s**
Argia moesta	powdered dancer	3, 7a, 7b**s**, 12a**s**, 14a**s**, 14b**s**, 17a**s**, 19**s** 23**s**, 24**s**, 26**s** 27**s**, 31**s**, 36**s**, 39**s**, 41**s**, 42**s**
Argia plana	springwater dancer	19
Argia sedula	blue-ringed dancer	14b, 23**s**, 31, 34**s**, 39
Argia tibialis	blue-tipped dancer	23, 27**s**

Argia translata	dusky dancer	14b**s**, 19**s**, 23, 24**s**, 31**s**, 34**s**, 39**s**, 41, 42**s**, Jack Cr. Campground (Logan Co.)[RJB]
Chromagrion conditum	openwing damsel	2a
Enallagma aspersum	azure bluet	2a, 2b, 20, Jack Cr. Campground (Logan Co.)[RJB]
Enallagma basidens	double-striped bluet	11b, 29
Enallagma civile	familiar bluet	1b, 11b, 40, 43
Enallagma daeckii	attenuated bluet	10a
Enallagma divagans	turquoise bluet	5, 13
Enallagma exsulans	stream bluet	4b, 7a, 14a**s**, 14b, 17a, 19, 23, 27, 31, 36, 39, 41, 42
Enallagma geminatum	skimming bluet	34
Enallagma signatum	orange bluet	4a, 5, 6, 11b, 14b, 29, 40, 41, 42, 43
Enallagma traviatum	slender bluet	Lake Sylvia (Polk Co.)[FSCA], Shady[FSCA]
Ischnura hastata	citrine forktail	2a**s**, 2b**s**, 4a**s**, 4b**s**, 6, 10b, 11a**s**, 11b**s**, 12a**s**, 38**s**
Ischnura kellicotti	lilypad forktail	25
Ischnura posita	fragile forktail	1a**s**, 1b**s**, 2a**s**, 2b**s**, 4a**s**, 4b**s**, 5, 6**s**, 9**s**, 10b**s**, 11b**s**, 12a**s**, 12c**s**, 14a**s**, 14b**s**, 17a**s**, 25**s**, 26**s**, 27**s**, 28**s**, 30**s**, 32**s**, 33**s**, 36**s**, 37**s**, 38**s**, 39**s**, 40**s**, 42**s**, 43**s**
Ischnura ramburii	Rambur's forktail	6, 9**s**, 11b, 41
*Nehallenia integricollis***	southern sprite	13
Tachopteryx thoreyi	gray petaltail	15, 17a**s**, 22, 33**s**, 34**s**
Anax junius	green darner	2b**s**, 3, 4a**s**, 10b**s**, 11a**s**, 11b**s**, 12a**s**, 12b**s**, 14a, 14b**s**, 25**a**, 28**s**, 32**s**, 33**s**, 34**s**, 36**s**, 37**s**, 39**s**, 40**s**, 41**s**, 42**s**
Anax longipes	comet darner	9**s**, 12a**s**, 12b**s**, 20, 28, 33
Basiaeschna janata	springtime darner	4a, 16**s**
Boyeria vinosa	fawn darner	36, 41
Epiaeschna heros	swamp darner	1a, 1b**s**, 14a**s**, 15**s**, 17a**s**, 18**s**
Arigomphus lentulus	stillwater clubtail	6
Dromogomphus spinosus	black-shouldered spinyleg	4b**s**, 22**s**, 23**s**, 25, 27**s**, 30, 31, 39**s**
Dromogomphus spoliatus	flag-tailed spinyleg	11b
Gomphus externus	plains clubtail	15
Gomphus ozarkensis	Ozark clubtail	3, 7a, 12a, 14a, 17b
Gomphus graslinellus	pronghorn clubtail	3, 15, 17b
Gomphus oklahomensis	Oklahoma clubtail	3, 11a, 12a
Hagenius brevistylus	dragonhunter	14b**s**, 19**s**, 22**s**, 23**s**, 24**s**, 31**s**, 34**s**, 39**s**, 41, 42**s**, 43**s**
Ophiogomphus westfalli	Arkansas snaketail	Caddo R @ St Hwy 240 (Montgomery Co)[LIT]
Progomphus obscurus	common sanddragon	31
Stylogomphus albistylus	least clubtail	17a, 22, 31
Cordulegaster obliqua	arrowhead spiketail	12a, 12b**s**, 15, 17b, 21, 29
Cordulegaster n. sp.	undescribed spiketail	15
Macromia alleghaniensis	Allegheny River cruiser	23, 29
Macromia illinoiensis	Illinois River cruiser	17a
Epitheca costalis	stripe-winged baskettail	12a, 15
Epitheca cynosura	common baskettail	1a, 1b, 2a, 3, 4a, 6, 12a, 15
Epitheca princeps	prince baskettail	4b, 23**s**, 26
Neurocordulia xanthosoma	orange shadowdragon	27, Ouachita R @ US 270 (Montgomery Co.)[SWD], S Fourche LaFave R @ St Hwy 7 (Perry Co.)[SWD], Fourche LaFave R @ US 71 (Scott Co.)[SWD]
Somatochlora linearis	mocha emerald	11km NE Glenwood (Montgomery Co.)[SWD]
Somatochlora ozarkensis	Ozark emerald	11km NE Glenwood (Montgomery Co.)[SWD], 13km N Jessieville (Saline Co.)[RJB]
Somatochlora tenebrosa	clamp-tipped emerald	11km NE Glenwood (Montgomery Co.)[SWD]

Celithemis elisa	calico pennant	1b, 11bs, 12as, 14as, 20s, 29s, 37s, 43s
Celithemis eponina	Halloween pennant	4bs, 11bs, 15s, 25, 28, 29s, 34s, 37s
Celithemis fasciata	banded pennant	4b, 12b, 28, 29, 37, 32, 36, 40, 43
Celithemis verna	double-ringed pennant	6, 13, 33
Dythemis velox	swift setwing	30
Erythemis simplicicollis	eastern pondhawk	1as, 1b, 2bs, 4bs, 7bs, 10bs, 11as, 11bs, 12as, 12bs, 12cs, 14as, 14bs, 15, 17as, 23, 24s, 25s, 26, 27s, 28s, 29s, 30s, 31s, 32s, 33s, 34s, 36s, 37s, 38s, 40s, 41s, 42s, 43s
Erythrodiplax umbrata	band-winged dragonlet	6, 15
Ladona deplanata	blue corporal	1a, 1b, 4a, 5, 12as, 11a
Libellula auripennis	golden-winged skimmer	11b
Libellula cyanea	eastern spangled skimmer	2a, 2b, 4b, 6, 12a, 12b, 11a, 15, 28, 33
Libellula flavida	yellow-sided skimmer	15, 32s, 33s, 34, Mazarn[ASUMZ]
Libellula incesta	slaty skimmer	2bs, 4bs, 6, 10bs, 11bs, 12as, 12bs, 12cs, 23s, 25s, 27s, 28s, 29s, 30s, 31s, 32s, 33s, 34s, 36s, 37s, 38s, 40s, 41s, 42s, 43s
Libellula luctuosa	widow skimmer	4bs, 12bs, 14bs, 20s, 23s, 25s, 26s, 27s, 28s, 29s, 30s, 31s, 33s, 34s, 37s, 39s, 43s
Libellula pulchella	twelve-spotted skimmer	6, 11bs, 14bs, 37s, 39s, 40s, 41s, 43s
Libellula semifasciata	painted skimmer	15
Libellula vibrans	great blue skimmer	1b, 6, 19s, 31
Orthemis ferruginea	roseate skimmer	36s
Pachydiplax longipennis	blue dasher	1bs, 2as, 2bs, 4bs, 6, 10bs, 11as, 11bs, 12as, 12bs, 12cs, 14as, 14bs, 20s, 24s, 25s, 26s, 27s, 28s, 29s, 30s, 32s, 33s, 34s, 36s, 37s, 40s, 41s, 42s, 43s
Pantala flavescens	globe glider	7bs, 14bs, 26s, 31, 37s
Pantala hymenaea	spot-winged glider	7b, 26s
Perithemis tenera	eastern amberwing	4bs, 6, 10bs, 11bs, 12as, 12bs, 12cs, 14as, 28s, 29s, 30s, 33s, 34s, 36s, 37s, 40s, 41s, 42s, 43s
Plathemis lydia	common whitetail	1as, 2bs, 3s, 4bs, 11bs, 12as, 12bs, 12cs, 14as, 15, 17as, 19s, 20s, 22s, 23s, 25s, 26s, 30s, 31s, 32s, 34s, 37s, 40s, 43s
Simpetrum ambiguum	blue-faced meadowhawk	4bs, 28, 34, 43
Sympetrum corruptum	variegated meadowhawk	6s
Sympetrum vicinum	yellow-legged meadowhawk	35s
Tramea carolina	violet-masked glider	1b, 12b, 25, 33
Tramea lacerata	black-mantled glider	1bs, 3s, 6s, 10as, 10bs, 11bs, 20, 25s, 27s, 28s, 29s, 30s, 31s, 32, 33s, 36s, 37s, 40s, 43s

*Sight identification – no voucher specimen. These species can be field identified reliably
**New record for Arkansas
[ASUMZ]Record from specimen in the ASUMZ
[LIT]Literature record from Cook and Daigle, 1985.
[FSCA]Record from specimen in the Florida State Collection of Arthropoda
[RJB]Record from specimen in the personal collection of Roy J. Beckemeyer.
[SWD]Record from specimen in the personal collection of Sidney W. Dunkle.

Table 3. Number of new species for Arkansas counties in the Ouachita National Forest.

County Odonata	No. Anisoptera spp[1]	New	No. Zygoptera spp.[2]	New	Total
Garland	28	3	6	5	42
Logan	20	0	6	2	28
Montgomery	35	16	12	10	73
Perry	14	7	4	5	30
Polk	24	6	8	2	40
Saline	37	1	9	0	47
Scott	15	16	4	10	45
Yell	24	3	7	6	40

[1]Harp and Rickett (1985)
[2]Harp (1983)

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