

Westfall's Clubtail Field Survey Report

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Florida Natural Areas Inventory
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Institute of Science and Public Affairs
Florida State University



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Photo credit: Copulating pair of Westfall's Clubtails (*Phanogomphus westfalli*) at Eglin Air Force Base.
Photo by Robert Gundy.

Executive Summary

A Florida Natural Areas Inventory (FNAI) biologist visited nine sites in Blackwater River State Forest and 24 sites in Eglin Air Force Base in spring of 2021. In Blackwater River State Forest, Westfall's clubtail was detected at the type locality, Ates Creek Fish Hatchery. In Eglin Air Force Base, Westfall's clubtail was detected at three sites including two new sites predicted by the habitat model created by FNAI in winter 2020. Those two new sites extended the range over 10 km southward in Santa Rosa County. Most of the sites predicted by the habitat model that were visited included stream and river systems that were larger than the seepage streams preferred by this species. After conversations with experts and these field surveys, it appears that this species prefers very narrow and shallow sand-bottom seepage streams surrounded by high quality sandhill habitat that has a history of fire management.

Blackwater River State Forest (3/21/2021 – 3/22/2021)

Surveyors: Robert Gundy (FNAI) and Jerrell Daigle (Dragonfly Society of the Americas)

Ates Creek Fish Hatchery (30.7364, -86.8502): Ates Creek Fish Hatchery is the most visited site for this species and the type locality. There are 16 artificial ponds used to raise fish stocks. Surrounding this area to the west and south was Ates Creek. Ates Creek was a sand-bottom seepage stream that has been partially impounded. This makes it much wider than other occupied stream systems. It was generally less than 3 m wide. Its margins are dark organic muck. A mowed levee on its east side is where many observations of this species have taken place. The west side is open, fire-managed sandhill habitat. The east side has a broad seepage bog with deep, saturated, organic muck soils.

Seepage marsh trail (30.7208, -86.8090): This site was immediately north of Blackwater River site 2 and west of the dirt parking area. The upland habitat is sandhill habitat. Some areas had low understory with very infrequent taller shrubs making up the midstory and no subcanopy. *Phanogmophus hodgesi* was found west of the parking area. Some areas had a dense understory of saw palmetto with the midstory up to 2 m tall and no subcanopy. There were two small seepage streams less than 1 meter wide and only several centimeters deep with white sand bottoms and dark mucky margins. A dry depression marsh (approximately 0.24 acres) completely covered in graminoid plants was surveyed extensively. A seepage-fed depression marsh (approximately 0.75 acres) was surveyed unsuccessfully.

Blackwater River site 1 (30.7234, -86.7986): No *P. westfalli* were observed. The site was a steep bluff above the Blackwater River supporting open, fire-maintained sandhill habitat.

Blackwater River site 2 (30.7178, -86.8099): No *P. westfalli* were observed. The site was a sandy shoreline along the Blackwater River. The uplands were dense former sandhill habitat that is primarily woody shrubs and a leaf litter understory.

Alligator Creek (30.7782, -86.8743): No *P. westfalli* were observed. This site was a large seepage stream with a section impounded apparently by beavers. Alligator Creek was approximately 5-20 meters across with a mixed muck and sand bottom. This waterway is likely too large to support *P. westfalli*.

Maria Branch (30.7754, -86.9121): No *P. westfalli* were observed. This site was a large seepage stream with a section impounded apparently by beavers. Alligator Creek was approximately 5-20 meters across with a mixed muck and sand bottom. This waterway is likely too large to support *P. westfalli*.

Kelly Spring Branch (30.8034, -86.7973): No *P. westfalli* were observed. This site was a blackwater stream with very little flow. The stream has been encroached by woody shrubs. The upland habitat is sandhill. A thick midstory and fairly dense canopy of longleaf pine and mature turkey oak indicate a history of fire exclusion.

Beaver Creek bridge (30.8087, -86.7788): No *P. westfalli* were observed. This site was a seepage stream 2-4 meters wide and about 1 meter deep with a white sand bottom and mucky organic margins. Uplands on the west side are upland hardwood forest with no understory and a dense midstory and subcanopy of woody shrubs. Uplands on the east side are fire-maintained sandhill. This waterway is likely too large to support *P. westfalli*.

Beaver Creek (30.8056, -86.7789): No *P. westfalli* were observed. Dense woody encroachment prevented reasonable access to the stream. A shrub bog was reached that was presumably bordering Beaver Creek. The upland habitat adjacent to the shrub bog was sandhill with no understory, moderate midstory density, and mature turkey oaks. East of the dirt access road was open sandhill with a healthy understory and occasional midstory shrubs but virtually no subcanopy layer.

Eglin Air Force Base (4/1/2021 – 4/4/2021)

Surveyor: Robert Gundy (FNAI)

Poplar Branch/Atwell Pond (30.5612, -86.8730): This site was a clearing leading downhill to a seepage stream (Poplar Branch) with a seepage-fed depression marsh (Atwell Pond). The site is an erosion restoration area with wiregrass plantings. The upland habitat was sandhill with a dense understory and midstory. The seepage stream was less than 1 meter wide with a sand bottom with pebbles and mucky organic margins. Four adult *Phanogomphus westfalli* were observed along the clearing leading down to Poplar Branch. This site was a new occurrence.

Double Head Branch/Buck Pond (30.5512, -86.9101): This site was very similar to Poplar Branch/Atwell Pond. A short grassy slope led to a seepage stream (Double Head Branch) with a seepage-fed depression marsh (Buck Pond). The seepage stream was less than 2 meters wide at its widest with a sand bottom and mucky organic margins. This site was also an erosion restoration area but without wiregrass plantings. The immediate surroundings were sandy slopes with very short grasses and no shrubs. The upland habitat was sandhill with an open, patchy understory, a midstory that varied from dense to scattered, and mature turkey oaks. Six adult *Phanogomphus westfalli* were observed in the grassy areas near the seepage stream. Four adult *Phanogomphus hodgesi* were also found in the sandhill uplands.

Rogue Creek 3 (30.5621, -86.5445): The upland habitat at this site was a recently cleared sandhill with few mature pines and sand live oaks standing. There was a sparse, but diverse, understory and a scattering of midstory shrubs. This site will likely be high quality sandhill with fire management. Downslope to the southwest was Rogue Creek. This was a multi-channel seepage stream with sand bottom. Channels ranged from 1-5 meters wide but rarely exceeded 0.5 meters in depth. The surveyor considers this site one of the most beautiful and unique sites he had ever seen in Florida. In the sandhill above Rogue Creek, three adult *Phanogomphus westfalli* were observed. One of these observations took place approximately 325 meters away from Rogue Creek, the farthest distance this species has been recorded away from water.

Turkey Gobbler Creek (30.6712, -86.6620): No *P. westfalli* were observed. This site is a seepage stream approximately 10 meters wide with a white sand bottom. This waterway is likely too large to support *P. westfalli*.

Middle Creek (30.6638, -86.6762): No *P. westfalli* were observed. This site was a seepage stream less than 1 meter wide with a sand and muck bottom. The upland habitat was fire-maintained sandhill. North of Rattlesnake Bluff Road, the habitat becomes dense former sandhill with long-term fire exclusion. South of the road appeared to be ideal.

Wolf Creek tributary (30.5922, -86.8224): No *P. westfalli* were observed. This site was a narrow seepage stream less than 1 meter wide with a sand and muck bottom. The upland habitat was fire-maintained sandhill. This stream may have been too small or too ephemeral to support this species.

Grassy field W of Bear Creek (30.5869, -86.8595): No *P. westfalli* were observed. This site was a grassy dome surrounded by sandhill. The short vegetation appeared suitable for adults, although this could not be a breeding site.

Loon Branch (30.5741, -86.8666): No *P. westfalli* were observed. This site was a small seepage stream less than 1 meter wide with a muck and sand bottom. The surrounding upland habitat was sandhill with a dense understory and midstory. The stream appeared to be suitable, but the upland habitat was probably too dense to be optimal adult foraging habitat.

Little Boiling Creek (30.5414, -86.8650): No *P. westfalli* were observed. This site was a seepage stream 3.5-6 meters wide with a sand bottom. The upland habitat was sandhill in ideal fire-maintained condition. The stream was likely too large to support this species.

Horse Branch depression marsh (30.4802, -86.7150): No *P. westfalli* were observed. This site was a large ephemeral depression marsh that was mostly dry. The surrounding upland habitat was sandhill with a moderately dense saw palmetto understory and scattered midstory. No seepage streams were in the immediate vicinity.

West Branch Lightwood Knot Creek (30.4986, -86.6171): No *P. westfalli* were observed. This site was a densely overgrown sandhill with long-term fire exclusion. There was nearly complete canopy/subcanopy cover with no understory plants. A powerline right-of-way creates access to the area, but the dense upland plants and brushy powerline right-of-way prevented easy access to the seepage stream.

Garnier Creek (30.4790, -86.5858): No *P. westfalli* were observed. This site was a broad seepage stream approximately 10 meters wide up to 1.5 meters deep with a sand bottom. This stream was unlikely to support this species.

Trout Creek (30.4824, -86.2887): No *P. westfalli* were observed. This site was a seepage stream that had multiple small channels less than 1 meter wide under a dense baygall. The bottom of each channel was sand but margins were extensively organic muck. The upland habitat was ideal fire-maintained sandhill with a low, very diverse understory with only occasional midstory plants.

Padgett Spring Branch steephead (30.5248, -86.2590): No *P. westfalli* were observed. This site was the steephead of a seepage stream less than 2 meters wide. The upland habitat to the northwest was recently cleared sandhill. A scattering of mature pines remained while the previously woody midstory was mechanically cut. *Tachopteryx thoreyi* and *Phanogomphus hodgesi* were observed.

Basin Creek (30.5173, -86.2358): No *P. westfalli* were observed. This site was a large blackwater stream 15-20 meters wide. This stream was likely unsuitable for this species.

Little Basin Creek (30.5335, -86.2375): No *P. westfalli* were observed. This site was a broad blackwater stream with a wide corridor of swampy baygall. All surrounding upland habitat appeared very dense. *Phanogomphus hodgesi* was observed.

Turkey Creek (30.5794, -86.6074): No *P. westfalli* were observed. This site was a seepage stream about 5 meters wide with a sand bottom. The upland habitat was fire-maintained sandhill. This stream was likely too large to support this species.

East of Turkey Creek (30.5737, -86.6052): No *P. westfalli* were observed. This site was a sandhill in varying conditions. Some areas were highly disturbed from military training activities. Some areas were fire-maintained sandhill with a sparse understory and moderate subcanopy of turkey oaks. Other areas had a moderately dense saw palmetto understory with more mature pines. *Hylogomphus geminatus* was observed here.

Rogue Creek 1 (30.5506, -86.5674): No *P. westfalli* were observed. This site was a hilly sandhill site with multiple artificial depressions that may have been borrow pits. The sandhill habitat was in ideal fire-maintained condition with a low, diverse understory and sparse midstory. There was a seepage stream approximately 3 m wide with a sand bottom. The stream was bordered by slope forest then sandhill farther upslope. The uplands appeared ideal for this species.

Rogue Creek 2 (30.5561, -86.5622): No *P. westfalli* were observed, but one clubtail escaped before identification could be made. This site was a seepage stream approximately 3 meters wide with a sand bottom. A shrub bog with carnivorous plants bordered the stream. The upland habitat was sandhill. This site appeared suitable for this species.

Turkey Creek (30.5618, -86.5363): No *P. westfalli* were observed. This site is a broad seepage stream approximately 10 meters wide and 1 meter deep with a sand bottom. The surrounding upland habitat is densely overgrown former sandhill with long-term fire exclusion. Turkey Creek did not appear ideal for this species, however it was documented there in 2003.

Anderson Pond (30.5597, -86.5137): No *P. westfalli* were observed. This site is a man-made pond created by impounding Anderson Branch. Both the pond and the seepage stream are sand bottom. The seepage stream ranges up to 1 meter wide but rarely exceeds 0.5 meters deep. The surrounding upland habitat is a mowed disc golf course and densely overgrown sandhill with long-term fire exclusion. *P. westfalli* was documented at Anderson Pond in 2003.

Titi Creek (30.7077, -86.3562): No *P. westfalli* were observed. This site is a seepage stream less than 1.5 meters wide and less than 0.5 meters deep with a sand bottom. The upland habitat is ideal fire-maintained sandhill with a diverse, sparse understory and patchy midstory. This site appeared ideal for this species. Multiple *Tachopteryx thoreyi* and an unidentified clubtail were observed here.

Hog Creek west (30.7180, -86.3521): No *P. westfalli* were observed. This site was a seepage stream heavily encroached by woody shrubs. The upland habitat was former sandhill with sand pine plantings that is densely overgrown. Some areas are devoid of understory plants and consist of densely overgrown midstory and subcanopy shrubs and young trees. Some areas have a diverse understory and moderately dense midstory. This site did not appear suitable for this species.