Breeding Population of *Anax longipes* discovered in the Finger Lakes Highlands of New York.

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Abstract: Capture/release and sightings of male *Anax longipes* adults at a private pond in the Finger Lakes region of New York in 2004 and 2005 were bolstered by the discovery and identification of ten *A. longipes* exuviae in July and August of 2005.

Background and methodology: After Mike May and Phil Corbet's appeal for field assistance in a study of the seasonal ecology of *Anax junius* in 2003 (Argia 15(2): 15-16), we volunteered our time and one of our ponds which was a particular favorite of that species. In 2003 we collected and measured exuviae to form a baseline. In 2004, we collected and measured larvae bi-weekly from April through November while also collecting exuviae daily. In 2005, we truncated the effort to daily exuviae collection/identification. The study will continue indefinitely.

Discussion: In the summer of 2004, we were surprised and elated over a sighting of *Anax longipes* over our study pond in Schuyler County, Town of Hector, N.Y. Little did we know that one encounter would go on to become daily sightings of one and sometimes two individuals over a several week span. These odonates appeared to prefer early morning and late afternoon hunting/patrolling periods.

We set off to capture this dragonfly and eventually paired up to confuse the dragon into Sue's net. They are adept at patrolling just out of reach and avoiding repeated net swings! After measuring and photographing this male *A. longipes*, we released him and enjoyed his presence for a few more weeks. We also captured and released the second *A.longipes* after determining it to also be a male.

Unlike the nine wildlife ponds we designed for this sanctuary, this pond was designed with people pleasure in mind. After digging the gradated and shallow wildlife ponds we came to the realization that we were both running out of room and had no place to swim. We set out to dig this pond for human needs!

It was completed in September 1999. In its sixth season in 2005, it has become the pond where we get all the goodies less Somatochloras which show up in our avian mist nets closer to the house and along a seasonal stream. This pond is also very near to another stream where we have identified four Cordulegaster

species. To date we have identified 71 species of odonates on the sanctuary, most at this pond.

Here's the hooker. We dug this pond 18 feet deep with hardly any slope to the sides! We seeded it, and all the others, with Fathead minnows for mosquito control and the dike/margins are not mowed except once during the late fall. The periphery is mainly sedges and cattail. The pond is "D" shaped and about 35 to 40 meters on a side. It is fed by an "elephant trunk" field drain tile that we ran from a very wet portion of the adjacent field that turned out to be the surfacing point of an artesian spring.

The east side is mixed woods and the Cordulegaster stream. The west is field-hedgerow-field with the wildlife ponds further west. The north is also field-hedgerow-field and the south is field-hedgerow-backyard. The fields are un-mowed and have been slowly regenerating for twenty years. Dissolved oxygen averages 12 ppm and Ph averages 7.5 to 8. The pond bottom is well-covered (infested?) with *Chara spp*. One other SAV, *Potamogeton foliosus* is also present but in lesser amounts. The Chara is an ideal larval nursery/hunting ground! Bottom substrate is still developing but is thin mud/chara. In twelve feet of water the Chara is 6 inches tall and that increases to several feet tall as the pond shallows very near the banks.

Much to our surprise, we collected four very large Anax exuviae on 13 July 2005! These were identified as male *A. longipes* by overall length, shape of labial palps and length of prementum and metafemora. What a find and only the second in upstate New York! Although we only saw males in 2004, there must have been a female that we missed. In retrospect, this may also explain some of the larger intermediate Anax instars that we measured in late 2004.

As we collected *A. junius* over the next weeks, we collected *A. longipes* as follows: 16 and 17 July – one male each; 19 July – the first female; 26 July – one female; 30 July – one female and finally on 12 August, the last female. In 2004 we collected 1,004 *A. junius* exuviae and no *A. longipes*. In 2005, we had a much-reduced *A. junius* emergence at 159 but the 10 *A. longipes* certainly upped the excitement level of a pretty tedious project.

Anax longipes have been identified as breeding in one pond in central Pennsylvania and another just Southwest of Albany, NY. Our location is roughly mid-way and north of a line drawn between them. Ours is only the second upstate New York pond with a documented history of repeated presence of the species although sight records have been reported from other upstate locations (Donnelly, pers com).

According to Paul Novak (pers com), the Albany pond is also characterized by having Chara as the predominant SAV. That pond is in Albany County, Town of Altamont and is similar to ours. Built in 1988, it covers about one-third acre, is

ringed by cattail but has few other emergents. It is 15 feet deep with gradually sloping sides and the chemistry has not been documented. This pond is fishless and has a good ranid population. Paul first observed *A. longipes* there in 1993. Visits in June through August of 1995 resulted in 30 exuviae collected and three to six adults observed. In 1996, Paul collected 10 exuviae and observed two adults. In 1997, he collected 26 exuviae and saw only one adult. Paul's last collection was in 1998 when he had 18 exuviae and observed one adult and one female in the process of emerging, The earliest exuvia date was 20 June and the latest was 23 August. Collections were not done daily so the possibility of more washed away by rains exists. Paul hasn't visited this pond in recent years but is pretty sure that *A. longipes* still exists at the site.

The Pennsylvania pond is the well-studied "Ten-acre pond" which is described as a semi-permanent pond in central Pennsylvania, west of State College. It is a man-made pond dependent on rainfall and snowmelt for water. It may have been an enlargement of a preexisting pond. Depth is normally less than five feet. The substrate is clay and many areas lack organic sediment and vegetation according to Schiffer and White (BAO 3:2). They also note numerous microhabitats at the pond. One end is largely clay with little rooted vegetation while the other has heavier organic substrate and a variety of vegetation. Submerged aquatic vegetation types and water chemistry were not reported in that study but may exist in other Penn State publications. *Anax longipes* has been documented at this pond in 19 years from 1955 through 1995 (BAO 3:2) and was seen there as recently as the DSA meeting in 2005. Hal White reports that the species has been present in 24 years through 2005 (pers com). It is interesting to note that the species record has several gaps indicating a less than continuous presence.

Conclusions: Did the new individuals breed here in 2005? Were the adults we observed in 2005, other than the emergers? We looked at the two main probabilities of foraging transients and a colonization attempt. The length of stay in both years would militate for the latter as would the emergence. The territorial behavior exhibited by the two males that we observed on several occasions would also buttress the latter supposition when one considers cost theory. We'll have to wait to see what next summer brings.

Three things appear certain. *A. longipes* prefers to patrol in the early morning and late afternoon whereas *A. junius* goes all day long. Chara appears to form an ideal and perhaps preferred substrate. This species prefers to emerge in the pre-dawn hours.

Data on this Anax collection effort have been shared with Mike May of Rutgers for his seasonal ecology study as well as with John Mathews (University of Texas) for his doctoral research project (Argia 17(2): 14-15 and 17(3): 29-31). A male and a female exuvia specimen *of A.longipes* have been transferred to Paul

Novak for the N.Y. State Museum collection and as documentation for the NY State Odonate Survey (Argia 16(4): 16-17).

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Encl: 1. Photo of *A. longipes* exuviae alongside an *A. junius* exuvia.
2. Photo of adult male *A. longipes*