

Commercial Odonate Fishery at Cao Hai, Guizhou Province, southwest China

Keith Wilson

In August 2005 I travelled from Guangzhou to Weining in west Guizhou, Province, southwest China and visited a large montane lake know as Cao Hai. To my surprise I found the local Hui and Yee people actively engaged in commercial fishing for odonate larva destined for human consumption.

The journey, by train, took two days. The first train was a comfortable inter-city train from Guangzhou to Guiyang, the provincial Capital, with a journey time of 24 hours. The second train, an inter-city train from Guiyang to Neijing (Yunnan), was less comfortable with far more passengers than seats. My small group had to stand the entire six-hour journey in the middle isle, continuously hassled by food and beverage trolleys, cleaners, restless passengers etc. We left the train at Weining, which is very close to our destination, the Cao Hai National Nature Reserve. Cao Hai is a shallow, high altitude lake. My GPS instrument measured an elevation of ca 2,215 M and produced coordinates taken at the Weining edge of the lake of North 26° 51.442', East 104° 167.194'. The lake is a ground water fed system with no surface feeder streams or rivers. It is located in a shallow basin surrounded by karst limestone mountains. The water quality is alkaline due to the calcareous nature of the catchment and it supports a high diversity of aquatic plants including lilies, several species of rooted submerged aquatic macrophytes dominated by *Potamogeton* spp., and many clumps of emergent rushes and sedges. The lake also supports large swathes of the calcium-loving stonewort (*Chara* sp.).

Throughout the lake many Dutch-style fyke nets were set to trap fish, frogs and odonates. These traps consist of tubular nets (similar to a fisherman's keep net) with inscales (conical devices which allow fish and odonate larvae to swim through but not back out) and long leaders (flat upright nets designed to guide quarry towards the inscaled catching chambers). I examined the catch of one fyke net, which contained many bitterlings, small crucian carp and rice eels in addition to *Anax parthenope* larvae. Given the extremely high density of fyke nets the high numbers of small fishes and absence of large fishes was not unexpected. The commercial odonate fishery is based entirely on the capture of *Anax parthenope* (Selys, 1839) larvae. The larvae are dried and sold at retail prices by merchants for ca 100 yuan per kg (US\$ 13/kg). Each kg contains several thousand *Anax* larvae. In Weining we encountered several dried food merchants supplying odonates with each trader holding stock of millions of dried larvae.

The commercial fishery appeared to have no significant impact on the local population of *Anax parthenope*. During my short visit from 15th August 2005 to 19th August 2005 I observed many thousands of *Anax partheope* exuviae, which had successfully avoided entrapment in fyke nets and used clumps of emergent vegetation or the outside of fyke nets for support during emergence.

In a local restaurant in Weining my group ordered a dish of odonates and were promptly served with a dish of freshly fried and seasoned larvae. Surprisingly they were quite tasty; a bit like oily crisps with no strong or unpleasant flavours.

Other odonates observed at Cao Hai included: *Ischnura asiatica* (Brauer), *Ischnura aurora* Brauer, *Ischnura* sp. (*rufostigma* Selys, 1876 – group), *Cercion calamorum* Ris, *Cercion v-nigrum* (Needham), *Crocothemis servilia* (Drury), *Orthetrum albistylum* Selys, and *Sympetrum flaveolum* Linnaeus.

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28.10.2005



Cao Hai shallow calcarious lake



**Cao Hai National Nature Reserve,
Weining, Guizhou Province, China**



Fringed water lily



Fyke net



Grey heron



Emptying fyke nets



Anax parthenope Selys emerging



Anax parthenope Selys exuvia



Dried food merchant



Dried odonate larvae



Restaurant dish of odonates



Ischnura aurora Brauer



Ischnura sp. (*rufostigma* Selys, 1876 - group)



Ischnura asiatica (Brauer)



Cercion calamorum Ris,



Cercion v-nigrum (Needham)



Crocothemis servilia (Drury)



Orthetrum albistylum Selys



Sympetrum flaveolum Linnaeus