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NOTES

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From Ancient Capital to South of the Clouds: Butterfly Studies in Wild China, May, 2011

Between May 10 and May 27, 2011, fourteen American naturalists traveled in several provinces of the People's Republic of China. While our trip began in Beijing and concluded in Shanghai, taking in the usual tourist highlights in those cities and in Xian, our express purpose was to investigate the Lepidoptera and other fauna and flora in a number of natural areas and preserves. Wherever possible, butterflies and moths were photographed and caught for examination and release, as we held no permits for collection or export of specimens.

Trip planning and arrangements were made by experienced China-traveler and lepidopterist Janet Chu, and facilitated by Chinese naturalist/guides Dengyu Zuo and Xinjun Lei of WildGiantPanda. We visited the impressive entomological institute and butterfly garden at Northwest China Agriculture and Forestry University, Yangling, Shaanxi, for collegial discussions with Chinese entomologists: Dr. Wei Yong Ping, Director of Museums and Gardens, biodiversity of apple orchards; Prof. Xiang-qun Yuan, DNA of Hesperiidae; High Scholar Fang Lijun, Nymphalidae of QinLing Mountains, butterfly biodiversity. The institute was founded and built by the great lepidopterist Chou Io, whose *Monograph of Chinese Butterflies*, revised edition (Henan Science & Technology Publishing House, 2001) served as our primary resource.

Seventeen days of touring led us to a wild, unmaintained section of the Great Wall at LongQuanyu; into bamboo-forested mountains of the Foping National Nature Reserve in the Qin Ling Mountains, Shaanxi, to observe wild Giant Panda (*Ailuropoda melanoleuca*), Red-and-White Giant Flying Squirrel (*Petaurista alborufus*), and Golden Pheasant (*Chrysolophus pictus*); and to Longli Village Forest Park and Botanical Garden at GuiYang, where a Long-tailed Shrike (*Lanius schach*) hawked a rice paddy plowed by a water buffalo. Yak took over when we shifted from subtropical to alpine, grazing high meadows among Tibetan houses and wilderness reserves in Shangri-la County (=Zhongdian), capital of the DiQing (=Dêqên) Tibetan Autonomous Prefecture, Yunnan. The extraordinary bloom of spring wildflowers in northwest Yunnan included at least eight species of *Rhododendron*. We explored the shores of Napa Lake, hiked along Shudu Lake in Pudacuo National Park, and finally ascended 4,449-meter Shika Snow Mountain, near India, Burma, and the eastern Himalayan headwaters of the Mekong, Yangtze, and Salween rivers. UNESCO describes this region as "an epicentre of Chinese biodiversity [and] one of the richest temperate regions of the world" (http://whc.unesco.org/en/list/1083).

Only a few common pan-Asian species of butterflies were observed in Beijing, Xian, and Kunming parks, including *Papilio demoleus* L., *Graphium sarpedon* (L.), *Pieris rapae* (L.), *Colias poliographus* Motschulsky, and *Cupido argiades* (Pallas), the latter two on ubiquitous and very large White Clover (*Trifolium repens*). The Yangling butterfly garden, an enclosure, permitted close viewing of well-known local specialties that we never encountered in the wild, such as *Catopsilia pomona* (L.), *Cethosia biblis* (Drury), *Kallima inachus chinensis* Swinhoe, *Idea leucanoe* (Erichson), *Danaus chrysippus* (L.), and *D. melanippus* (Cramer). Some additional Palearctic species familiar to us only in texts or from western Europe turned up at Longli Forest Park, including *Argynnis paphia* (L.) and *Aglais urticae* (L.).

By far the highest diversity we encountered came in the superb temperate forest of the Foping Panda Reserve, accessed by a long hike with equipment packed in on horse-train. The air quality here was good, and river-birds, aquatic invertebrates, and amphibians all indicated high water quality. These conditions, and the extraordinarily rich floristic communities (hectares of blue *Corydalis*; at least six species of maples (*Acer*), where once had been a busy trading route and temples),

Fig. 1. *Erynnis montana* (Bremer), QinLing Mountains.
Photo by Evi Buckner-Opler.

Fig. 2. *Carterocephalus christophi* (Grum-Grshimailo).

Fig. 3. *Barca bicolor* (Oberthür).

Fig. 4. *Parnassius glacialis* Butler.

Figs 2-4. QinLing Mountains. Photos by Evi Buckner-Opler.

were all highly unusual in our experience in China, both before and after. Besides its remarkable mammals, birds, and plants, Foping presented a great array of Lepidoptera. One of the most prominent and striking skippers, the large, yellow-banded black *Barca bicolor* (Oberthür) (Fig. 3), puddled at many wet surfaces in large numbers; while forest glades were occupied by genera familiar to North Americans, represented by very different species, such as *Carterocephalus christophi* (Grum-Grshimailo) (Fig. 2) and *Erynnis montana* (Bremer) (Fig. 1). Several species of large black-and-red swallowtails, such as *Byassa dasarada* (Moore) (Fig. 5), *Papilio mackii* Ménétries, and *P. bianor* (Cramer), coursed the river and nectared at *Eleagnus* shrubs. Open areas, often former fields now lightly cultivated for a species of dogwood, hosted vast numbers of *Pieris* of several species (*rapae*, *canidia* (Sparrman), *melete* Ménétries, *brassicae* (L). and/or their lookalikes) and *Colias fieldi* Ménétries (Fig. 7), while the bamboo forest openings produced *P. napi* (L.), *Anthocharis thibetana* Oberthür (Fig. 6), *A. scolymus* Butler, *Leptidea serrata* Lee, and *L. amurensis* (Ménétries). Streamsides saw many lycaenids such as *Lycaena phlaeas* (L.), *Ahlbergia frivaldszkyi* (Lederer) (Fig. 8), and *Orthomiella pontis* (Elwes). Nymphalids of note at Foping included *Libythea celtis* Laicharting, a great many *Neptis philyroides* Staudinger, *Lilecella limentoides* (Oberthür) (Fig 9), one basking show-off of a *Kaniska canace* (L.) at a bridge beside a waterfall, and the lovely, violet-ventered *Araschnia burejana* (Bremer) (Fig. 13) in trailside seeps. Of the many satyrs, there were of course several bamboo-feeders in this panda-land, such as the dramatically patterned *Lethe albolineata* (Porjade) (Fig. 11). *Neope pulaha* (Moore) (Fig. 12) arose from the concrete path and dropped back down to bask on it continually, while big-eyed, rounded *Callerebia confusa* Watkins appeared only rarely from the forest shadows.

The most interesting lepidopterological phenomenon we encountered was a remarkable array of species of several families, both butterflies and moths, that we believe comprise a mimicry ring. Most of them occur at Foping. Members include the papilionid *Parnassius glacialis* Butler (Figs. 4, 10); the nymphalid *Calinaga buddha* Moore; the satyrine *Davidina armandi* (Oberthür) (Fig. 10) (robust and *Erebia*-like except for its black-veined, white wings like the others in this group); species of the pierid genus *Aporia*; and the extraordinary zygaenid moth, *Aglaope infausta* (L.). The latter flew near *P. glacialis* at the same time, and though more demure, resembled it uncannily, even to the yellow/orange abdominal vestiture.

Most of the *Aporia* whites we encountered, which may have been *A. procris* Leech or *A. bieti* Oberthür, flew abundantly around Shudu Lake in Pudacuo National Park, in its early spring at high elevation (3500 m.). Nearby, in this Tibetan part of Northwest Yunnan, the hillsides around the Napa Lake Nature Reserve supported many species new to us for this journey, among them: *Pyrgus maculatus* (Bremer & Grey), *Papilio machaon* L., *Pazala mandarina* (Oberthür), *Goneptryx mahaguru* (Gistel), *Clossiana gong* (Oberthür), *Polygonia c-album* (L.), *Parantica sita* (Kollar), and *Neope dejeanii* Oberthür. Unfortunately, cold wind and rain accompanied our trip to the summit of Shika Snow Mountain, where still other alpine species doubtless reside.

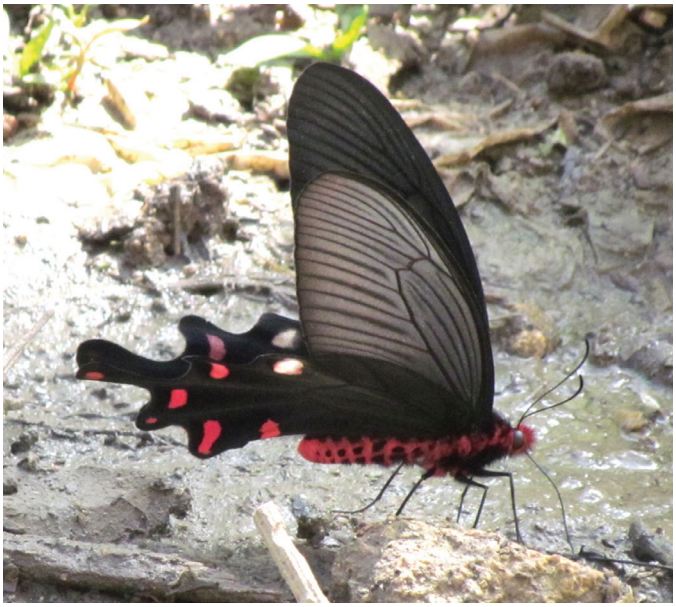

Fig. 5. *Byasa dasarada* (Moore).

Fig. 6. *Anthocharis thibetana* Oberthür.

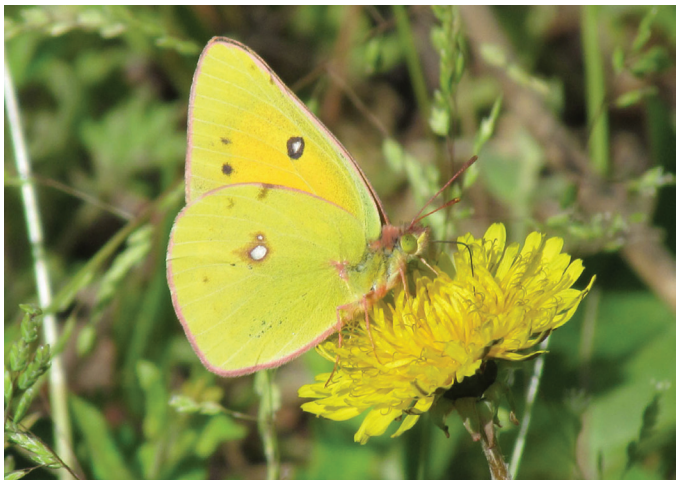

Fig. 7. *Colias fieldi* Ménétries.

Figs 5-11. QinLing Mountains. Photos by Evi Buckner-Opler.

Fig. 8 (top). *Orthomiella pontis* (Elwes), QinLing Mountains. Fig. 9 (bottom). *Lilecella limentoides* Oberthür.

Fig. 10. *Parnassius glacialis* (L) and *Davidina armandi* (Oberthür).

Fig. 11. *Lethe albolineata* (Porjade).

Fig. 12. *Lethe albolineata* (Porjade), QinLing Mountains. Photo by Thea Linnaea Pyle.

Fig. 13. *Araschnia burejana* (Bremer), QinLing Mountains. Photo by Evi Buckner-Opler.

Fig. 14. *Paris polyphylla* (Melantheaceae, formerly Trilliaceae), or «Love Apple», is listed as a vulnerable medicinal plant by IUCN. Uncommon over much of Southeast Asia and the Himalayan borders of China and India, it is indicative of the rich soils and diverse condition of the forest in the Foping National Nature Reserve. Photo by Thea Linnaea Pyle.

From there it was a steep, rude, cross-country descent to Shanghai and its heavy, smog-laden air. On our last field trip, to Zhouzhuang water village south of Shanghai, tens of thousands of butterflies covered all available blossoms: every last one of them *Pieris rapae*, except for one or two *Vanessa cardui* (L.) in a waterside park on the return to the city. Despite this anticlimactic finish, nearly one hundred species of butterflies overall had been observed, netted and released, and/or photographed. An annotated checklist will be published elsewhere.

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