Davis Report

Flora of Nepal Expedition: Mid-West 2018

Royal Botanic Garden Edinburgh

Dr Alan Elliott
aelliott@rbge.org.uk

The Friends of Glasgow Botanic Gardens

The purpose of the trip was to map Invasive non-native plant species in Mid-West Nepal and to collect general materials for the Flora of Nepal Project. I was accompanying Dr Bhaskar Adhikari from Royal Botanic Garden Edinburgh, Dr B.B. Shrestha of Tribhuvan University & Mr. T.R. Pandey of the Department of Plant Resources.

From the 20th of September to the 23rd of September I worked on the collections held in the National Herbarium of Nepal (KATH), Godawari. Two days were spent imaging and gathering data from nearly 550 specimens of Celastraceae for the taxonomic revision of that Family for the Flora project. A further day was spent determining unmounted Celastraceae, about 60 collections, in the KATH backlog so they can now be mounted and enter the main collection. Another day was spent determining unmounted *Meconopsis*, approximately 100 collections received a name, and curating part of the genus to better reflect the current taxonomy. This resulted in KATH gaining identified representation of an additional 12 *Meconopsis* taxa, 8 of which are Nepalese endemics.

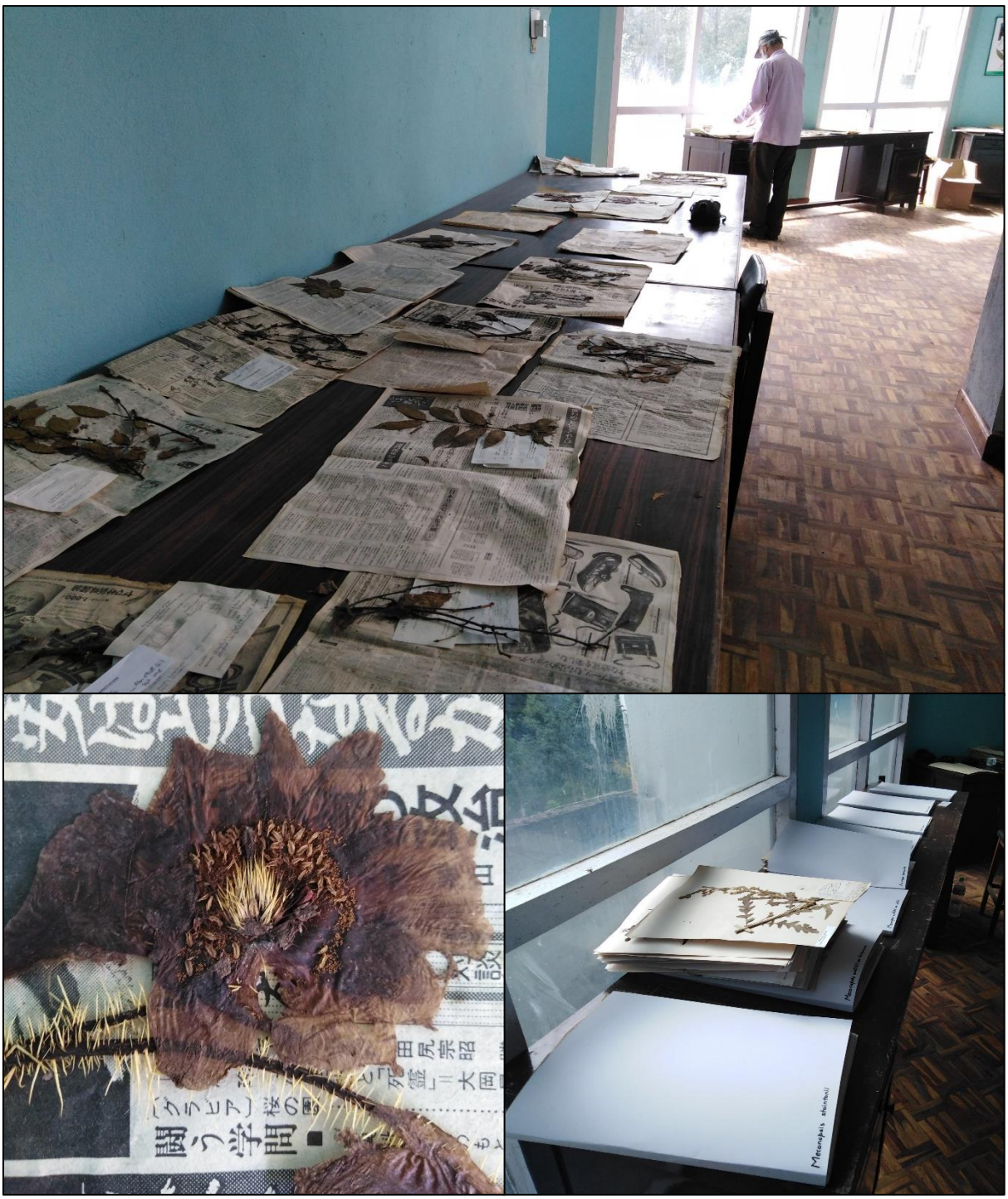

Figure 1 Working in the National Herbarium of Nepal at Godawari

From the 24th of Sept to the 7th of Oct.

The trip took in 14 Districts of Nepal, recording datapoints from 11 districts and making at least one collection of a representative specimen from 10 districts that were lacking representative specimens of Invasive plant species. In total we made 102 herbarium collections (Appendix 1), in four duplicate sets for Royal Botanic Garden Edinburgh (E), the National Herbarium of Nepal (KATH), Tribhuvan University (TUCH) and for Tokyo University (TI). The sets for E and KATH also had associated leaf tissue samples stored in silica gel for later DNA analysis.

At time of collection we placed specimens in sheets of newspaper which were annotated with a unique collection number and those would be pressed in the field press. We would also make leaf tissue collections at the same time, putting shredded leaf material in 'teabags' annotated with the number that corresponded to the herbarium specimen. We would note in our fieldbooks any associated data like altitude, latitude and longitude, vegetation notes and recorded morphological characters that are lost during the pressing and drying process. We also took plant profile images to capture characters that are lost during the drying and pressing process.

Once at our hotel or guesthouse we would enter data into the Flora of Nepal database we had with us on a laptop and set up the drying frame and kerosene stoves to burn overnight. At 6am we checked every specimen to see if it was dry; any damp specimens were returned to the drying press and bagged to be put back on the frame that evening along with new collections from that day. Dry specimens were bundled securely, annotated with the date they were bundled and placed in thick plastic bags to keep them dry.

At many sites we encountered the same suite of invasive species:

Name	**Family**
Ageratum conyzoides L.	Compositae
Ageratum houstonianum Mill.	Compositae
Amaranthus spinosus L.	Amaranthaceae
Bidens pilosa L.	Compositae
Cassia tora L.	Leguminosae
Hyptis suaveolens (L.) Poit.	Labiatae
Ipomoea carnea Jacq.	Convolvulaceae
Lantana camara L.	Verbenaceae
Parthenium hysterophorus L.	Compositae
Senna occidentalis (L.) Link	Leguminosae
Senna tora (L.) Roxb.	Leguminosae
Sida acuta Burm. f.	Malvaceae
Xanthium strumarium L.	Compositae

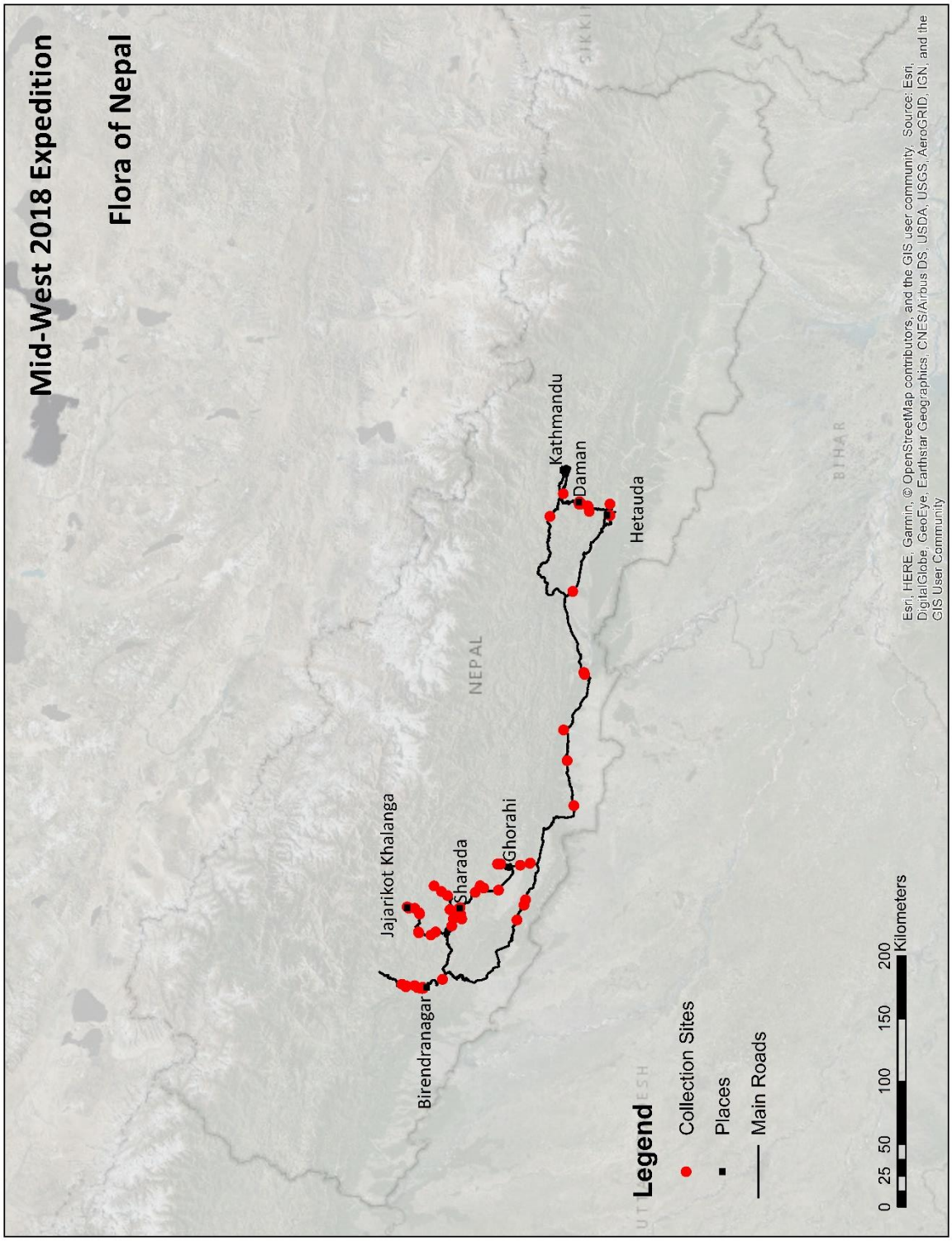

Figure 2 Route we took showing data and specimen collection sites (red) and some of the towns we stayed at (black).

Acknowledgements

I'd like to thank the Davis Expedition Fund and Friends of Glasgow Botanic Garden for their financial assistance allowing me to participate in the Mid West 2018 expedition and supporting the taxonomic revision of Celastraceae for the Flora of Nepal.

Figure 3 A selection of invasive non-native plant species recorded during the expedition.

1. Bidens pilosa L., 2. Amaranthus spinosus L., 3. Solanum torvum Sw., 4. Alternanthera pungens Kunth, 5. Lantana camera L., 6. Senna tora (L.) Roxb., 7. Mimosa pudica L., 8. Hyptis suaveolens (L.) Poit. , 9. Ageratum conyzoides L..

Appendix – Davis Expenditure

Purchase	Cost GBP	Currency Used
Salary Costs to RBGE	5840.74	
Flights	946.46	
Entry Visa	30	40 USD
Taxi RBGE to EDI	25	
Taxi EDI to Penicuik	40	
Accommodation TGH Wed 19th Sept	25	
Accommodation TGH Mon 7th Oct	25	
Accommodation TGH Mon 8th Oct	25	
Accommodation Godawari Hotel 20-24th Sept	73	
Food Godawari hotel 20th - 24th Sept	18	2650 NPR
Food K-too 8th Oct	17	2550 NPR
Food Tibet GH 19th Sep, 7-9th Oct	35	4784 NPR
Vaccinations	304	
Boots	190	
Total	**£7594.20**	