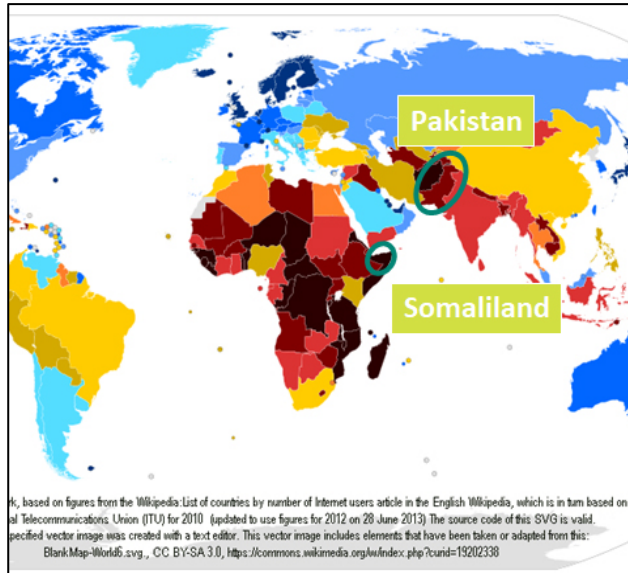


# Mobilizing data in Pakistan & Somaliland, two developing countries

Mary E. Barkworth

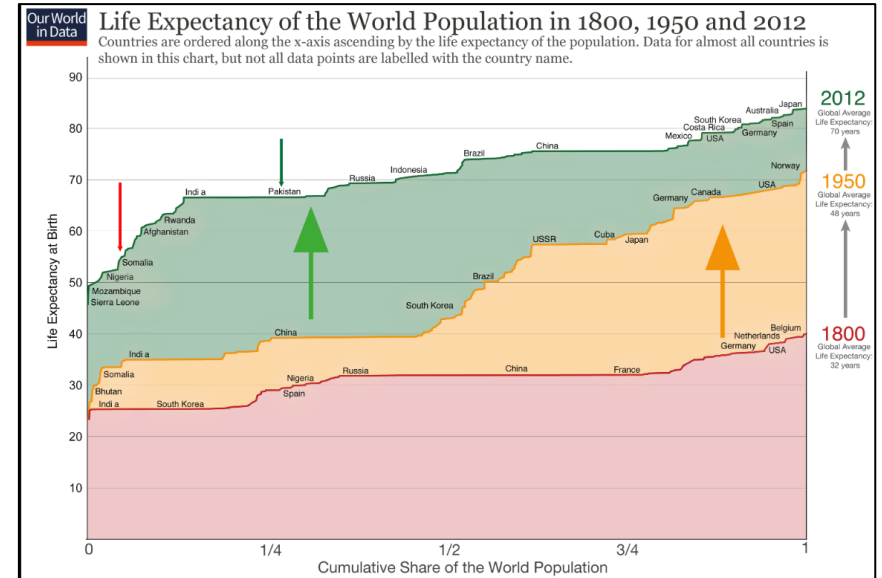


# All Countries Differ



Life Expectancy	Female	Male
Pakistan	64	73
Somaliland	37	56

Both countries GBIF-Dark until Sep 2018



## Pakistan

- 1947: Independence & **recognition**
- 1864: First college (GC Lahore)
- 1890: Research collections in what is now India
- **1911**: Collections at Faisalabad, Lahore
- 1970: Flora in Pakistan led by Pakistan
- By 2018: 19 registered herbaria
- Now: One herbarium a GBIF provider

## Somaliland

- 1888: British protectorate
- 1960: Independence, joined Italian Somaliland: Somalia
- 1991: Declared independence; **not recognized**
- 1993: Flora of Somalia in Europe led by Europeans
- 1998: Amoud University; 2000 University of Hargeisa
- **2016**: First herbarium started, HARG
- Now: HARG registered, became GBIF provider



## **Flexible input**

- Live - via browser
- Upload csv from
  - Inhouse database
  - Spreadsheet
  - [SPINDLE]

## **Low learning curve**

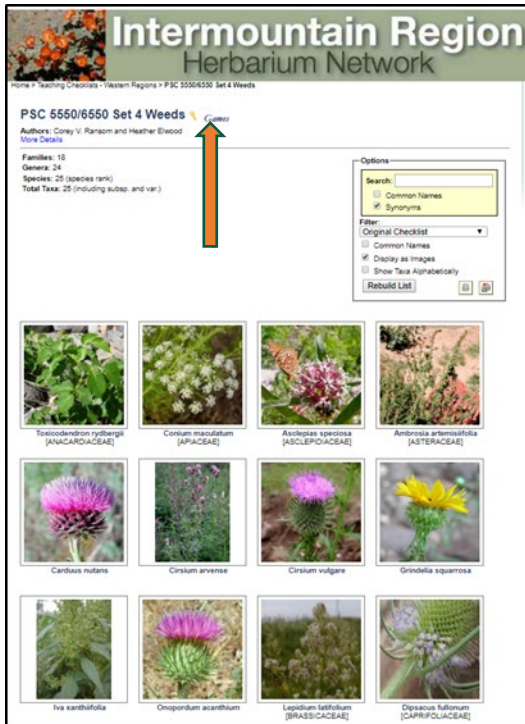
- 18 networks
- Over 7 million records
- Data capture by
  - Undergraduates
  - Inmates
  - Public
  - Staff

**ALMOST  
INSTANT  
GRATIFICATION**

**EASY TO CREATE  
RESOURCES FOR  
OTHER USES**

# Almost instant gratification

## Teaching checklists



Intermountain Region  
Herbarium Network

PSC 5550/6550 Set 4 Weeds

Authors: Corey V. Ransom and Heather Elwood  
More Details

Families: 10  
Genera: 24  
Species: 25 (species rank)  
Total Taxa: 25 (including subsp. and var.)

Options:

- ☐ Common Names
- ☒ Synonyms

Filter:

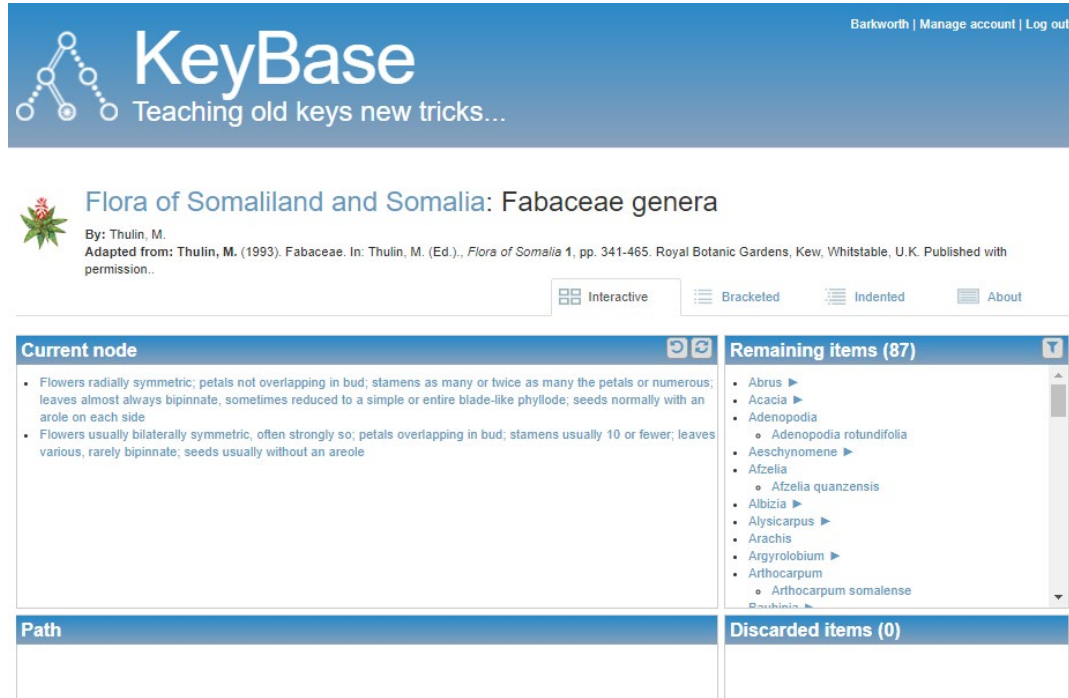
- ☐ Original Checklist
- ☐ Common Names
- ☒ Display as Images
- ☐ Show Taxa Alphabetically

Rebuild List

Grid of plant images and names:

- Toxicodendron rydbergii* (ANACARDIACEAE)
- Conium maculatum* (APIACEAE)
- Asclepias speciosa* (ASCLEPIADACEAE)
- Ambrosia artemisiifolia* (ASTERACEAE)
- Carduus nutans*
- Cirsium arvense*
- Cirsium vulgare*
- Grindelia squarrosa*
- Iva xanthiifolia*
- Oenopodium acanthum*
- Lepidium latifolium* (BRASSICACEAE)
- Dipsacus fullonum* (CAPRIFOLIACEAE)

## Post keys & link to taxon pages



KeyBase  
Teaching old keys new tricks...

Barkworth | Manage account | Log out

Flora of Somaliland and Somalia: Fabaceae genera

By: Thulin, M.  
Adapted from: Thulin, M. (1993). Fabaceae. In: Thulin, M. (Ed.), *Flora of Somalia* 1, pp. 341-465. Royal Botanic Gardens, Kew, Whitstable, U.K. Published with permission.

Interactive | Bracketed | Indented | About

Current node

- Flowers radially symmetric; petals not overlapping in bud; stamens as many or twice as many the petals or numerous; leaves almost always bipinnate, sometimes reduced to a simple or entire blade-like phyllode; seeds normally with an areole on each side
- Flowers usually bilaterally symmetric, often strongly so; petals overlapping in bud; stamens usually 10 or fewer; leaves various, rarely bipinnate; seeds usually without an areole

Remaining items (87)

- Abrus
- Acacia
- Adenopodia
- Adenopodia rotundifolia
- Aeschynomene
- Atzelia
- Atzelia quanzensis
- Albizia
- Alysicarpus
- Arachis
- Argyrobolium
- Arthocarpum
- Arthocarpum somalense

Discarded items (0)

Path

## Taxon pages



Open Herbarium  
An Open Vascular Plant Herbarium Network

*Parkinsonia aculeata* L.

Family: Fabaceae  
(somali: Geed walaayo, Sabsabaan)

M. Thulin | Somali | Uses

Flora of Somalia 1: 348

**Plants** evergreen shrubs or trees up to 6 m tall, with slender, often pendulous branches. **Leaves** with short petioles and rachises, the rachises extended into a straight, well-developed spine, with 1-3 pairs of pinnae with flattened rachises, each pinna with many, opposite to alternate leaflets; **leaflets** 2-7 mm long, 1.2-5 mm wide, oblong to oblong-elliptic, glabrous. **Racemes** up to 20 long, lax. **Flowers:** **sepals** 6-7 mm long; **petals** 8-12 mm long, 6-8 mm wide, ovate-rhombic, yellow, the upper one with red markings, a rounder blade and longer claw. **Pods** 3-15 cm long, 0.6-0.8 cm wide, constricted into oblong or elliptic segments, pointed or beaked, the sides coriaceous, diagonally striate, eventually dehiscing along the upper suture; **seeds** 7.5-10 mm long, 3.5-4 mm wide, oblong-ellipsoid, brownish, sometimes mottled.

*Parkinsonia aculeata* is native to tropical and subtropical America but it is widely cultivated as an ornamental species, for shade, and as a

Open Interactive Map

Other benefits

## Better field notes

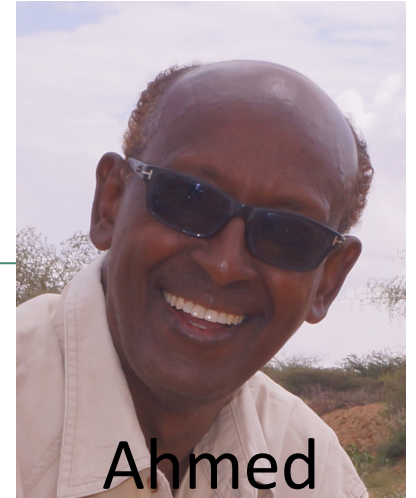
More collaborations  
Vouchered checklists  
Localized keys

## Data density dependent

Specimen heat maps  
[Taxon & clade heat maps]  
[Phenology predictor]

# Lessons learned - 1

- Local contacts imperative
- Emphasize
  - Benefits, institutional and personal
  - Importance of taxonomy
- Maximize what can be done offline
  - Provide downloadable written instructions
- Develop teaching units on different aspects of documenting biodiversity





# Lessons learned (2)

- Workshops – mixed approached
  - Pre- and post-workshop requirements for certificates.
- Develop project ideas
  - Identifiable value
  - Different levels
- Money helps, enormously
  - 2018 Biodiversity Information Fund for Asia - €15,000 + €15,000
  - ISL has >10,000 records on GBIF (not yet georeferenced)
  - HARG has 261 records on GBIF – no external funding

**QUALITY BIODIVERSITY DATA STARTS  
WITH QUALITY FIELDWORK**

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