

Pistachio Woodlands of Afghanistan

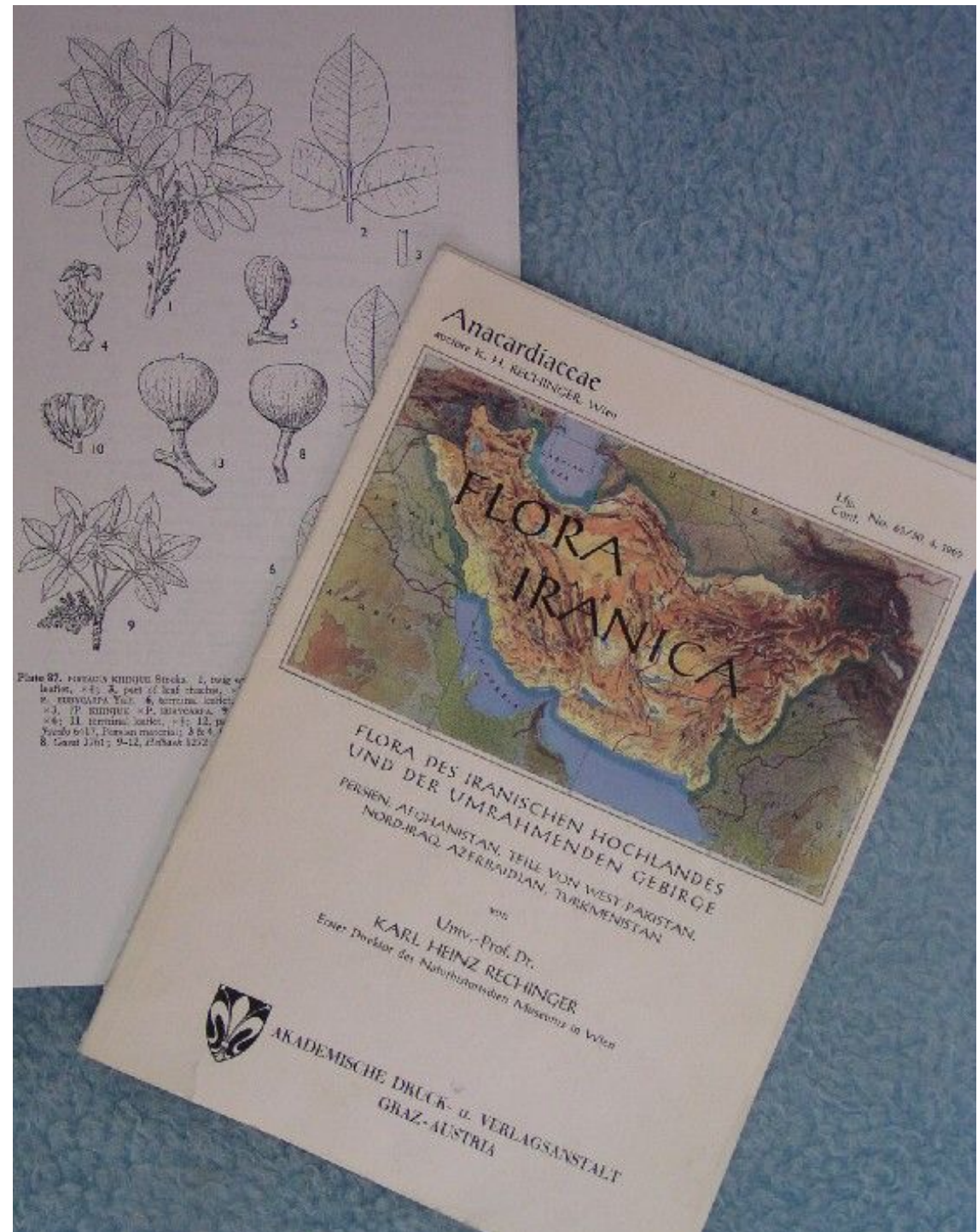
Pistachio:

- Pistachio originated in the north eastern, northern and western provinces of Afghanistan
- Pistachio is found in a broad belt across northern Afghanistan that is some 600 – 1,800m wide



Three species of *Pistacia*
are common in Afghanistan:
Pistacia vera L.,
Pistacia Khinjuk Stocks,
Pistacia atlantica
subsp. *cabulica* (Stocks) Rech. f.

A fourth,
Pistacia integerrima Stewart
is reported from Kunar and
Nangarhar Provinces



Pistacia Khinjuk
Collected by Griffith
July 10th, 1840
Between Kabul and Bamian

**Pistacia Khinjuk can not be
distinguished from P. vera
using molecular genetics**

Rootstock for P. vera.
Edible (nuts smaller than vera).
Medicinal uses.
Wildlife food source.



Pistacia atlantica subsp. cabulica
Collected by Griffith
July, 1840

Rootstock for P. vera.
Drought tolerant.
Medicinal uses.
Wildlife food source.
Conservation applications.



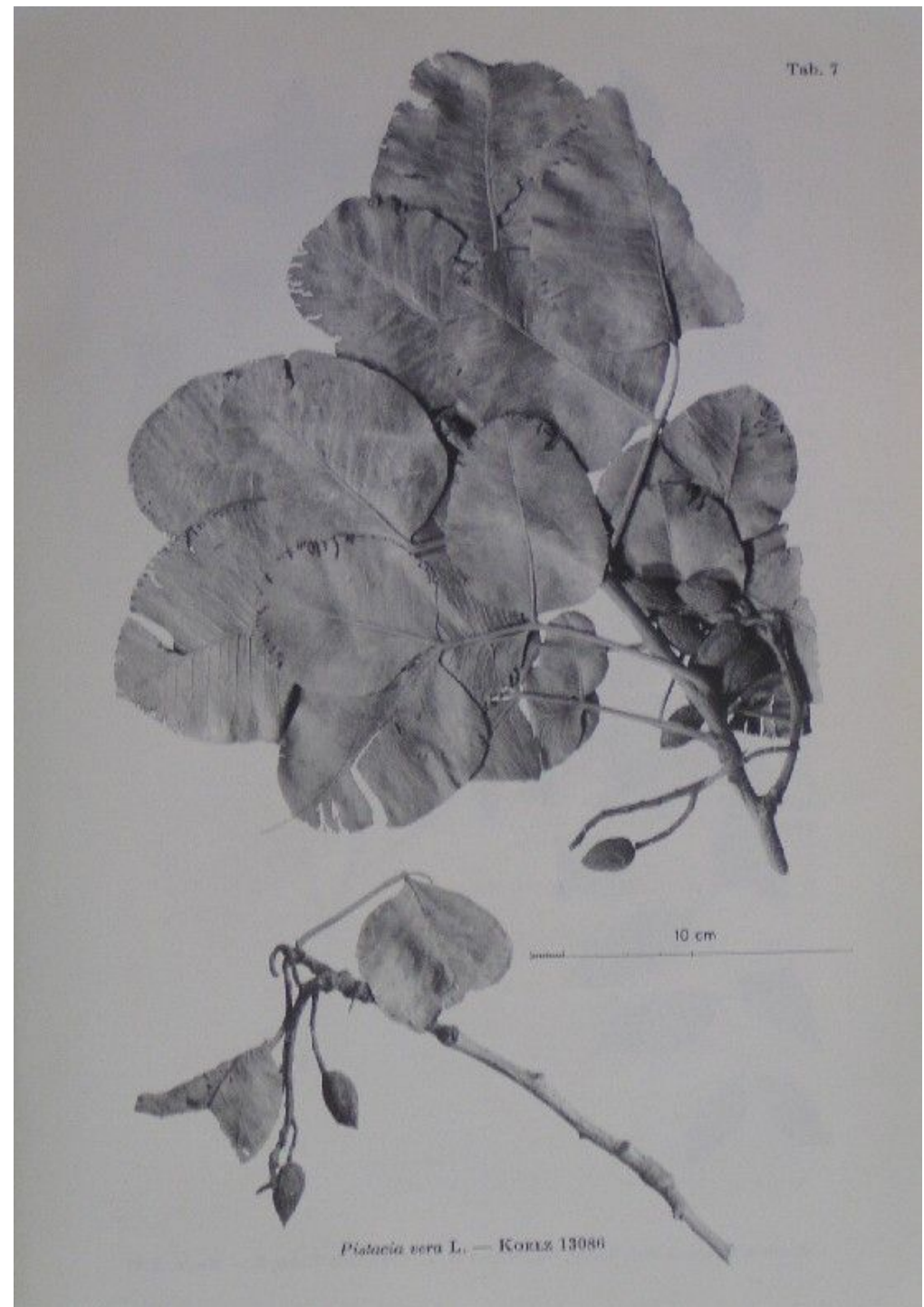
Pistacia integerrima
Collected in Tirah, Afghanistan

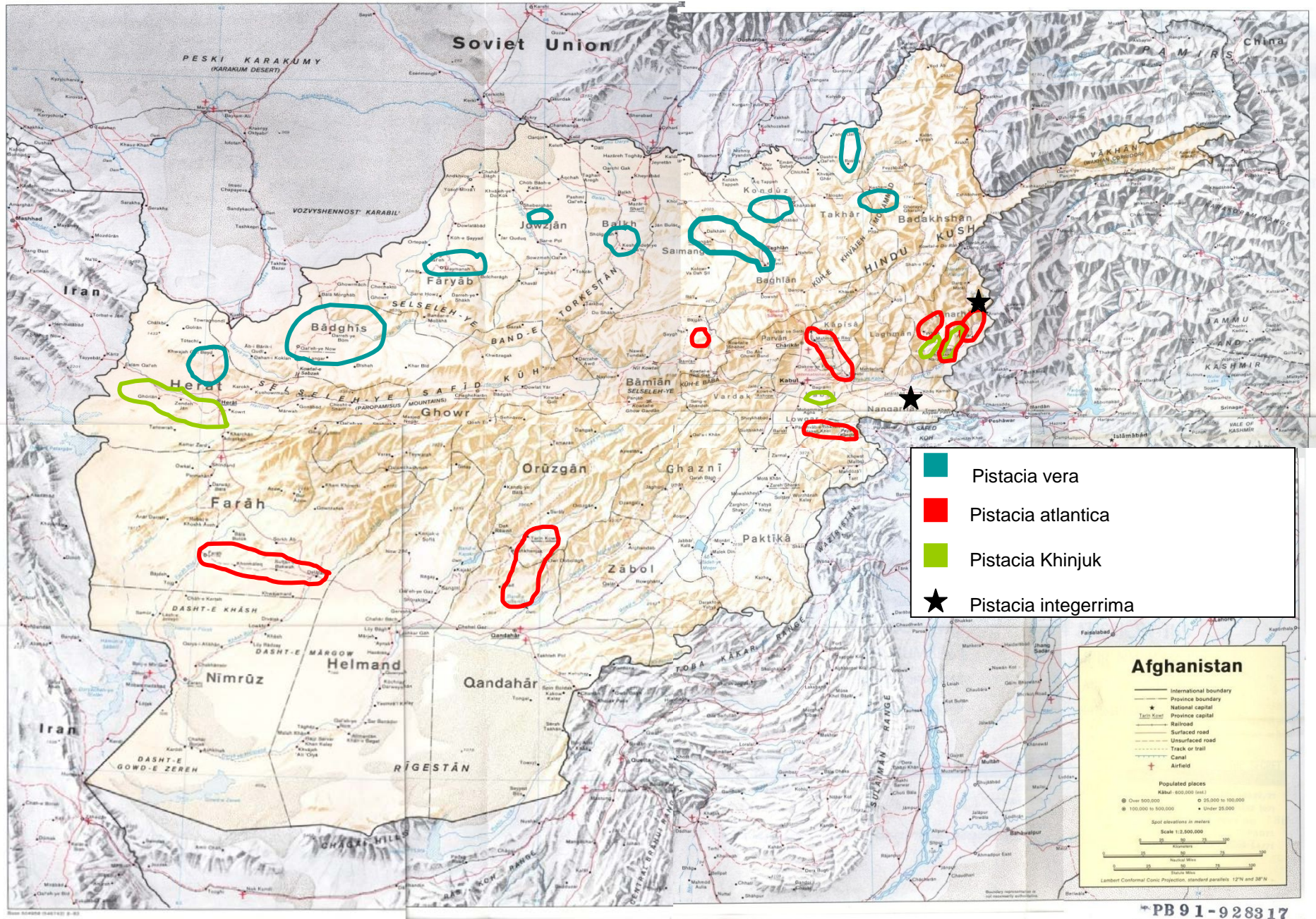
Rootstock for P. vera.
Resistant to drought.
Valuable wood.
Medicinal uses.



Pistacia vera
Collected by Afghanistan, Iran,
Tajikistan

Most valuable member of the
Pistacia genus with a total world
export value of \$544 million

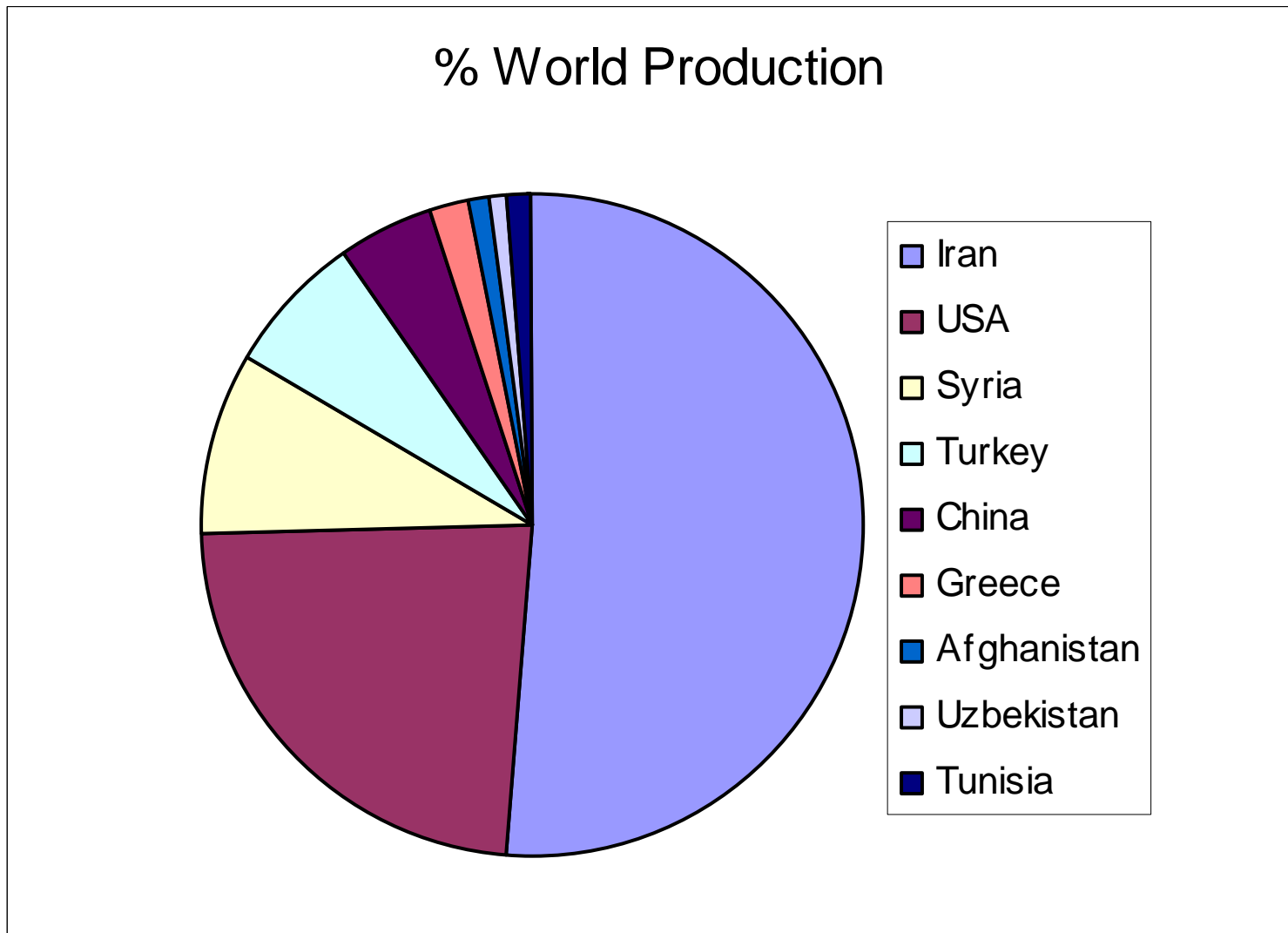




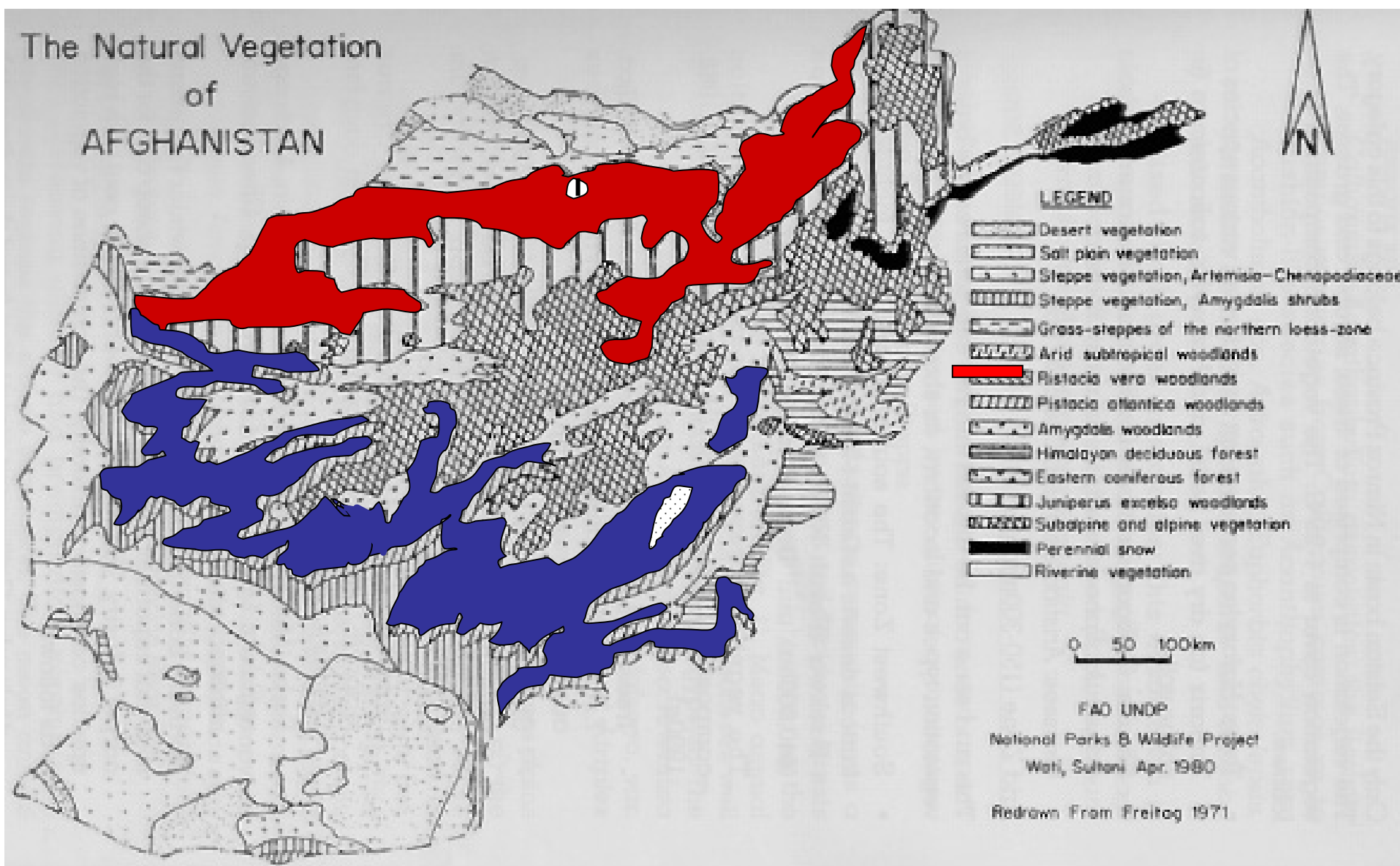


**Afghanistan is in the center of origin for *Pistacia vera*.
It holds valuable genes for cold hardiness and drought tolerance.
Afghan pistachios are recognized for color and intense flavor.**

Afghanistan is in the top 10 producers of pistachio in the world



The Natural Vegetation of AFGHANISTAN



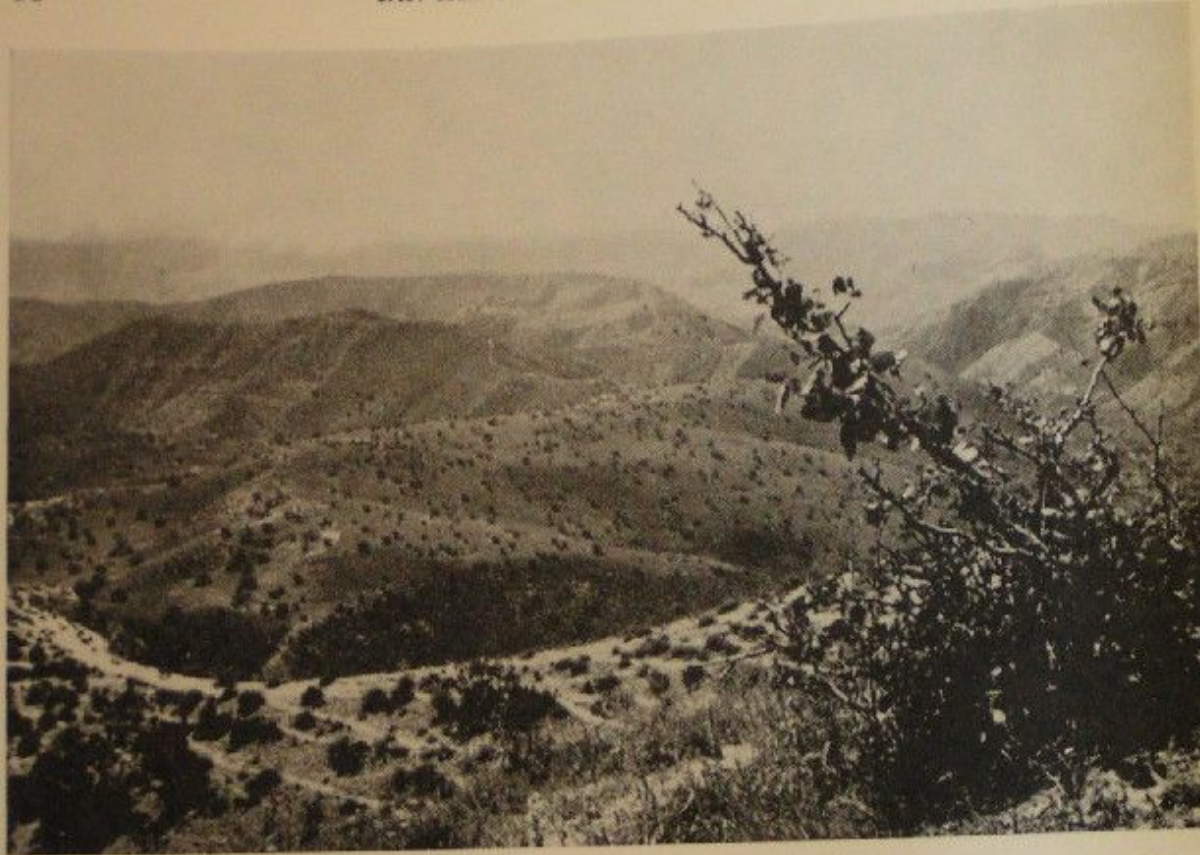
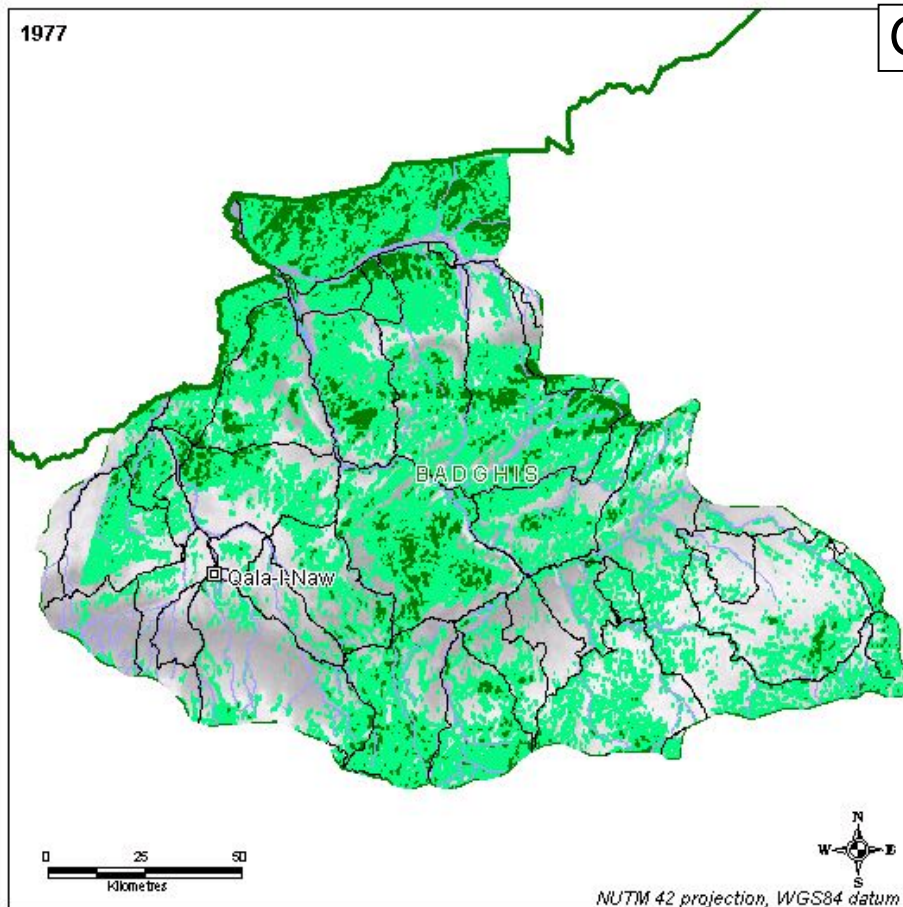


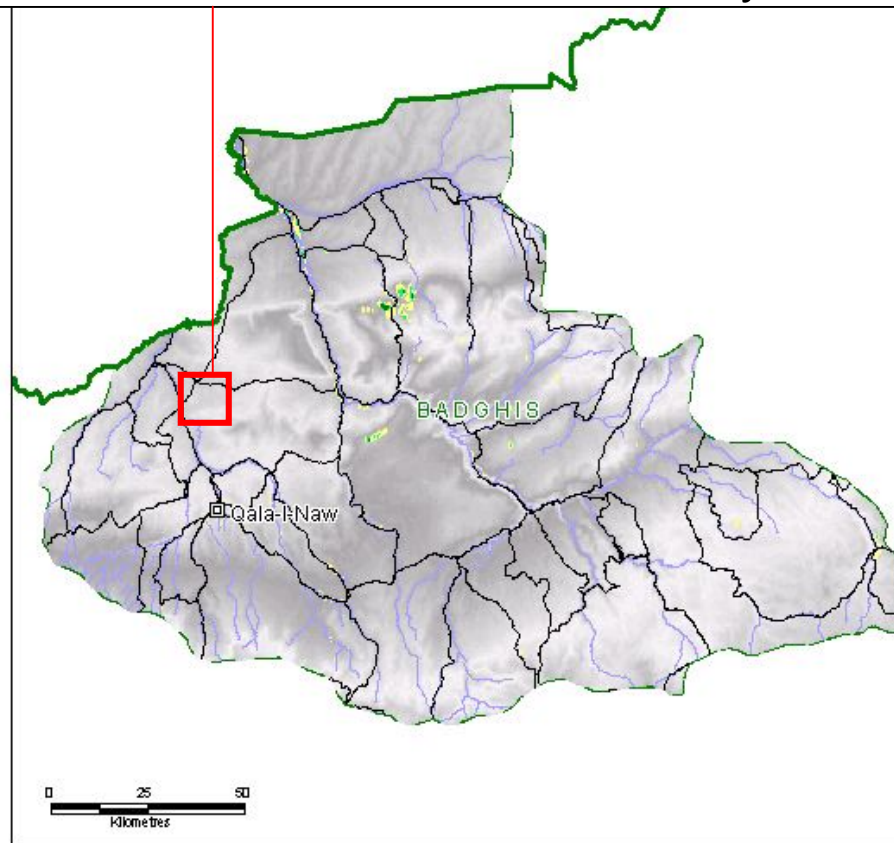
Fig. 11. Qataghan: 'Pistalek' (*Pistacia vera* woodland) at the Mirza Atbili pass. Photo P. W.
23 May.

Where trees still occur, density is reduced and there is no natural regeneration,

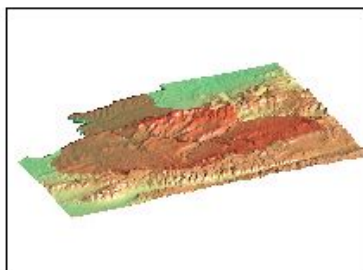
1977



General area of June 20, 2005, flyover



Afghanistan provinces woodland: Badghis, 1977 and 2002



- National capital
- Administrative capital
- International border
- - - Province boundary
- ~ Rivers
- Lakes

Legend

- Closed woodland
(40% < woodland)
- Open woodland
(20% < woodland < 40%)
- Scarce woodland
(10% < woodland < 20%)
- Digital Elevation Model backdrop
(ETOPO30)

About the map

Changes in forest cover and density
derived from Landsat MSS and ETM+
satellite imagery.

Date of image acquisitions:

17 June 1977 and
4 July 1977 (MSS)
2 September 2002 and
18 September 2002 (ETM+)

Image processing: DIGITECH Intl



UNOSAT
satellite imagery for all

Pistachio woodlands, North of Qala e Nao, Badghis province, Afghanistan.
Taken from about 2000 m altitude, 13:40 pm on June 20, 2005. Note increased tree densities on northern (shaded) exposures.





**Pistachio woodlands, North of Qala e Nao,
Badghis province, Photo 20 June 2005**



**Qataghan: Pistalek (*Pistacia vera* woodland)
at the Mirza Aitbili pass. Photo 23 May 1963.**

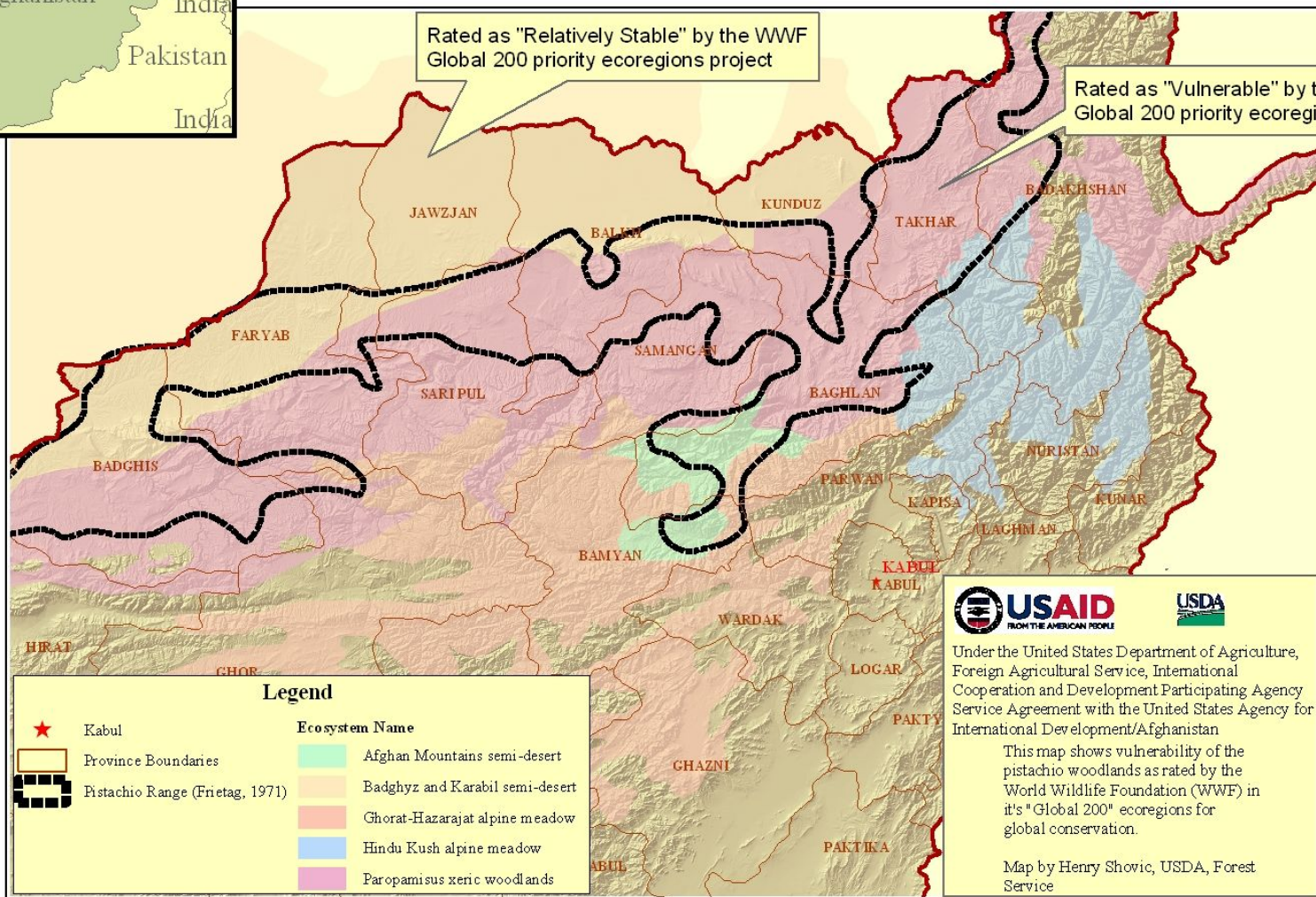


Afghanistan

Pistachio Ecosystem Vulnerability Vs 1.0

Rated as "Relatively Stable" by the WWF Global 200 priority ecoregions project

Rated as "Vulnerable" by the WWF Global 200 priority ecoregions project



Projection: WGS 1984 meters

0 25 50 100 Kilometers

1:4,000,000

Map Document: (C:\files\stmp\source\nonspatial\data\Documents\ForeignDetails\Mapping\ata\Maps\PistachioVulnerability_85x11vs10.mxd)
11/28/2005 -- 11:13:40 AM

Main threats to the pistachio forest

- Conversion for rainfed agricultural production
 - Overgrazing
 - Cutting for firewood
- Open access resource in many areas

Pistacia vera is dioecious with male flowers on separate trees from female blooms. Tree density impacts pollination, gene flow, with implications to forest fragmentation.



Female flowers



Male flowers

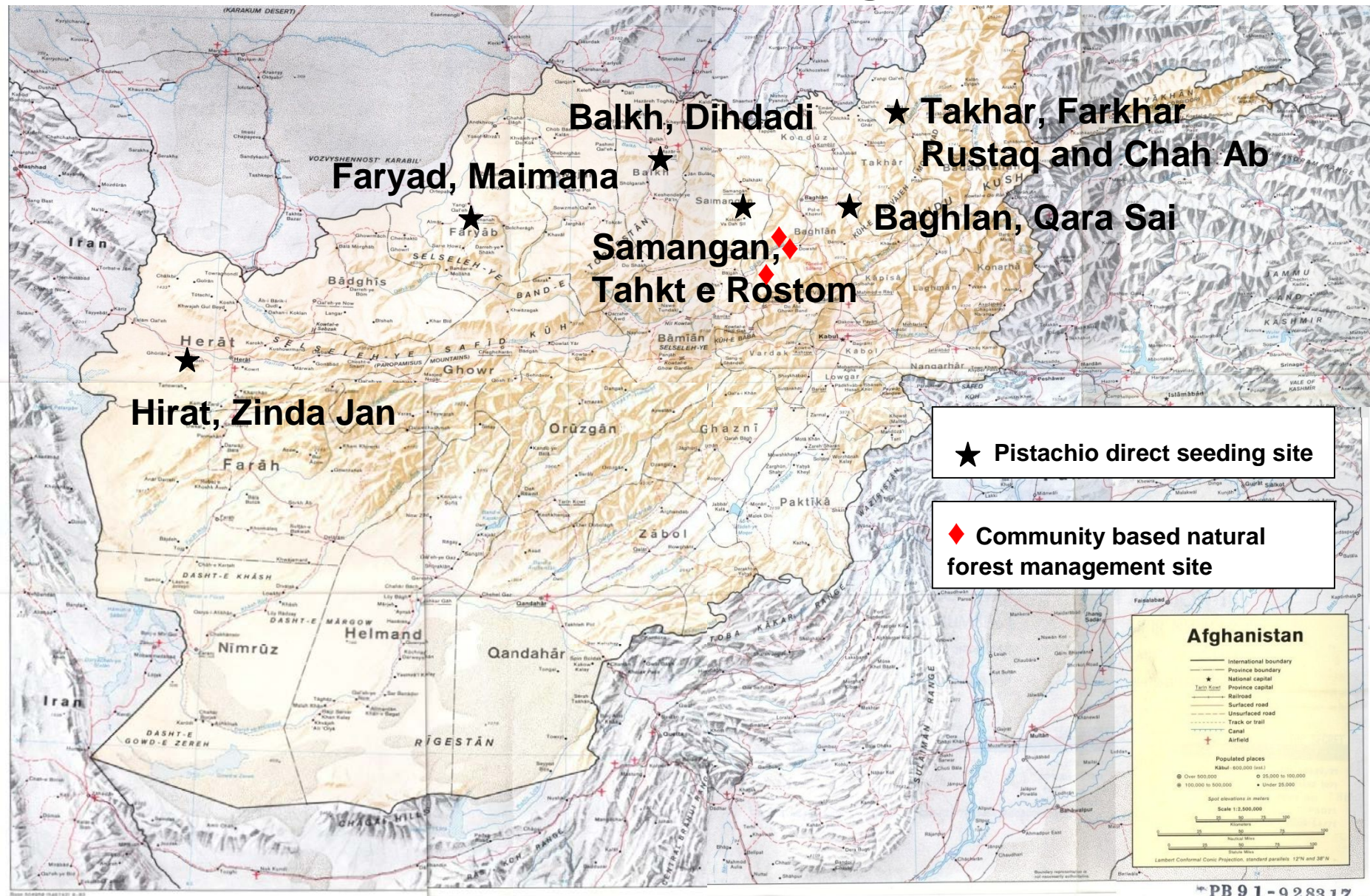
Conservation of the pistachio woodlands must reflect the priorities of the local communities who will sustain, and be sustained by them.



The work of the Afghan Conservation Corps is a model of conservation of plant genetic biodiversity, within the context of community use.



Two main approaches to Pistachio forest restoration and management:



Pistachio direct seeding: select trees

- Large crops
- Large nuts
- High percent split nuts



This will contribute to the productivity and quality of the resulting stand.

Pistachio direct seeding: collect

Monitor seed maturation to optimize collection at peak quality.

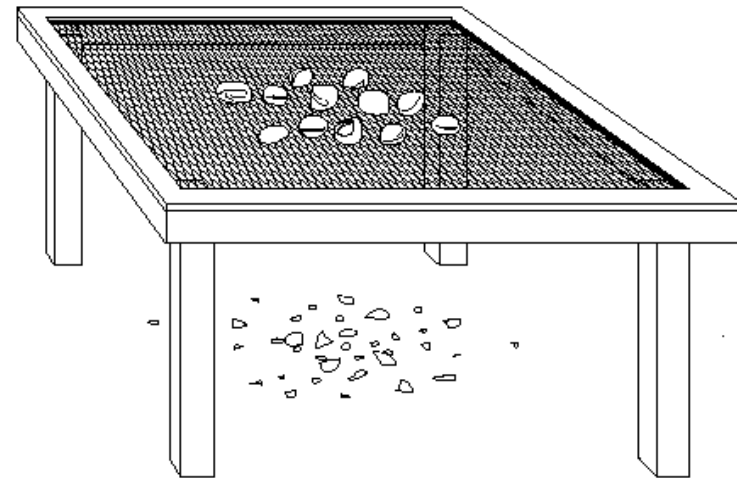
Work with local people to ensure collection at the proper time.

Seed from local sources for planting close to site.



Pistachio direct seeding: process & store seed

- Remove hulls by screening.
- Hulls can be composted for return to the orchard as mulch.
- If stored locally, seed is often hung from ceiling
- A centrally located refrigerated storage unit would allow seed samples to be stored for 3-4 years



Pistachio direct seeding: plant seed

- Coordinate planting in relation to creation of erosion control structures, season, and available labor.
- Plant between 20 November and 25 December for winter stratification.
- Plant between 15 March and 25 April in spring.
- Plant 2-3 seed per pit to ensure germination.
- Avoid known problems with deep planting.

Pistachio direct seeding: Manage

- Water 2 x per month, throughout season
- Protect from damage by grazing
- Apply mulch or manure as possible
- Train by pruning beginning in third year



Pistachio direct seeding: results

- To date, ACC has worked with local communities to restore pistachio woodlands in over 186 hectares of land



Community based natural pistachio forest management: important principles

- Collaboration between Government and community



Community based natural pistachio forest management: important principles

- Community involvement



Community based natural pistachio forest management: important principles

- Participatory establishment of community based forest management institutions based on traditional governance structures and CDCs



Community based natural pistachio forest management: important principles

- Capacity building and awareness raising



Community based natural pistachio forest management: important principles

- Valuable resources – pistachio plus medicinal plants



Community based natural pistachio forest management: important principles

- Importance of new Forest Law

