



National inventory and prioritization of crop wild relatives: case study for Benin

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RESEARCH ARTICLE

OUTLINE

- ❖ **Background**
- ❖ **Objectives**
- ❖ **Methodology**
- ❖ **Results & Discussion**
- ❖ **Perspectives**

BACKGROUND



>70 %  routine needs (Cavendish 2000; Mahapatra et al. 2005)

BACKGROUND

Species	GENUS	Cultivated	Non Cultivated
AAaa	<u>AA</u>	AAaa	
AAbb	<u>AA</u>	AAbb	
AAcc	<u>AA</u>		AAcc
AAdd	<u>AA</u>		AAdd
AAee	<u>AA</u>	AAee	
AAff	<u>AA</u>		AAff
AAgg	<u>AA</u>		AAgg
AAhh	<u>AA</u>		AAhh
AAii	<u>AA</u>		AAii

Crop Wild Relatives

BACKGROUND

Pimentel et al. (1997) ~

US\$115 billion per annum.

Continued

FAO (2009) significant increase CWR inventories. Lack of inventories (Africa);
CWR diversity = largely uncharacterized or un-evaluated and not systematically conserved.

Considerable debate on criteria for prioritizing species for conservation (see Maxted et al. 1997)

Recently, Brehm et al. (2010) developed an innovative prioritization scheme (Brehm et al. 2010).

Scheme=various criteria and different prioritization methods.

This new scheme applied in current study



OBJECTIVES

Goal= create a national inventory of wild relatives of priority crops in Benin and highlight priority species as a useful case study for the establishment of Phyto Genetic Resource (PGR) conservation strategies.

Assess the diversity of crop wild relatives of Benin

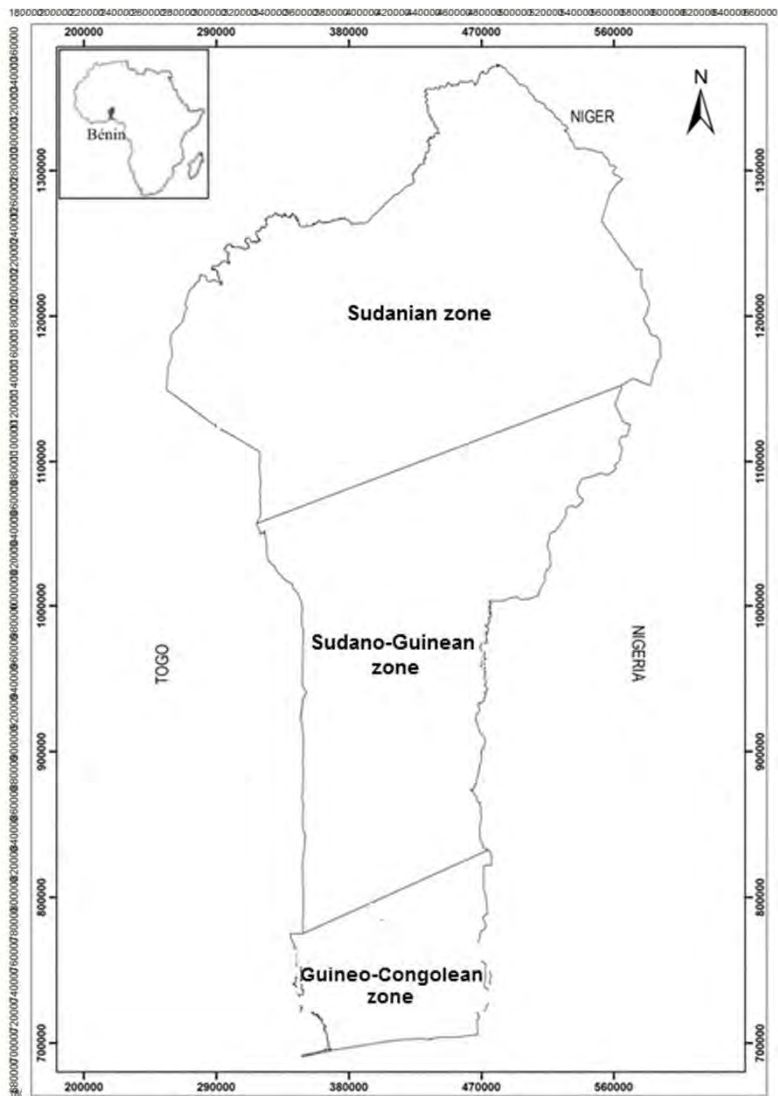
Bring out priority species for further conservation



METHODOLOGY

Adomou et al. (2006)

Assessing diversity of CWR in Benin



CROPS DATABASE

libraries (public and private), agricultural extension services, research institutes, laboratories, etc.

Flore Analytique du Bénin

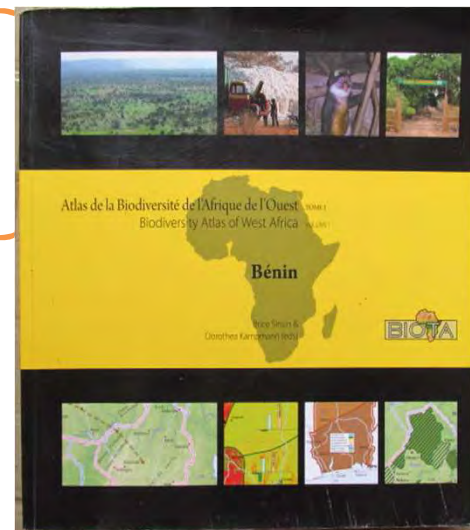
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Cotonou & Wageningen, 2006

Backhuys Publishers
2006

Flora of Simone De Souza



METHODOLOGY

Setting priorities for CWR conservation in Benin

INVENTORY OF THE CROP WILD RELATIVES

NATIVE STATUS

(Native, Exotic, doubtfully native,
No data)

ETHNOBOTANICAL VALUE

(food, forage, fodder, medicinal,
ornamental, religious, fence , others)

NATIONAL DISTRIBUTION

(10 phytodistricts)

GLOBAL DISTRIBUTION

(Worldwide, 1-2-3-4
Continents
West/Centre/North/East/South
Africa)

LEGISLATION

(Local, national,
international, no
data)

ECONOMIC VALUE

(Monetary value)

CONSERVATION STATUS

(non conserved, ex-situ, in
situ, circa situ, No data)

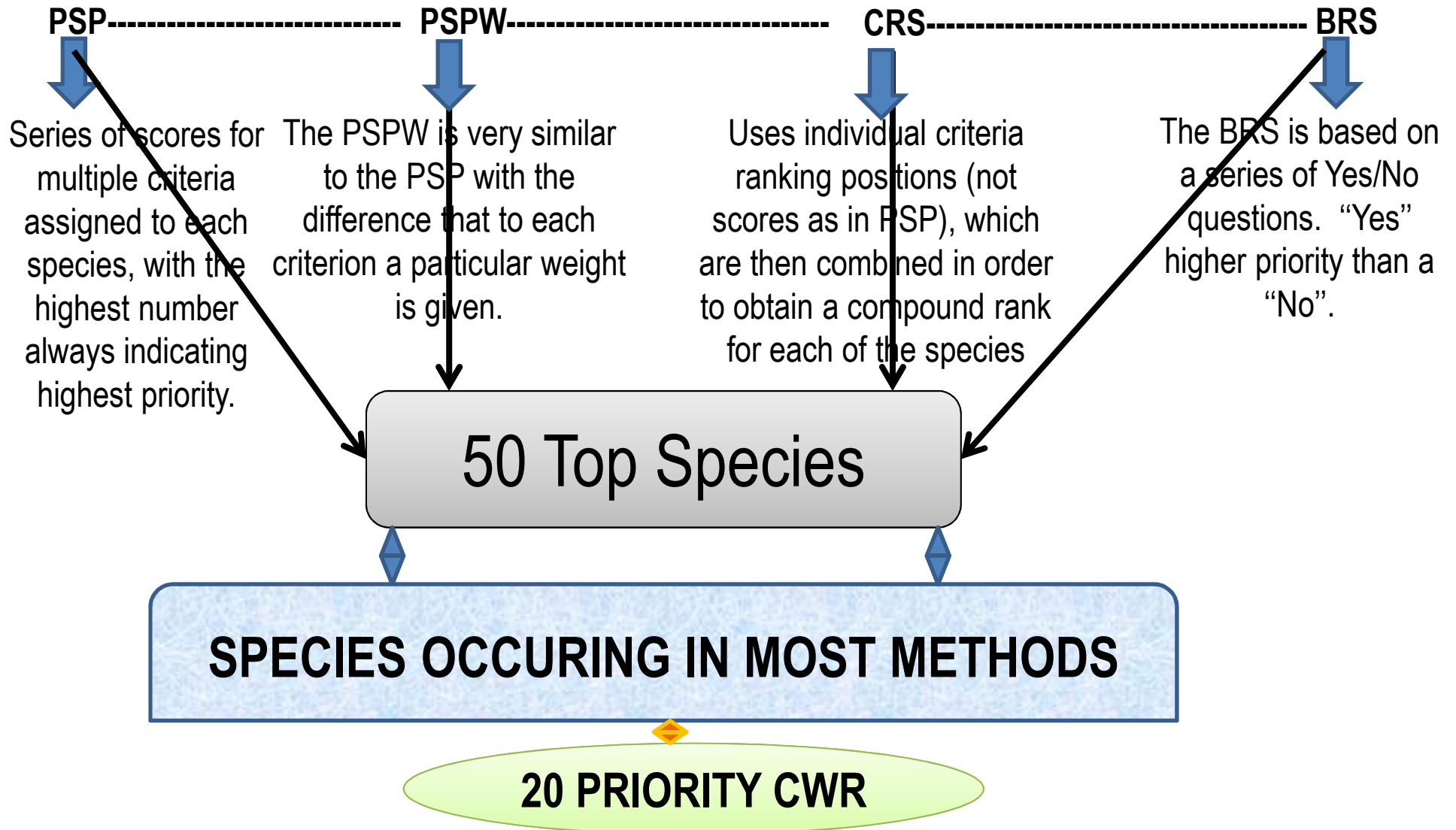
THREATS ASSESSMENT

(CR, EN, VU, NT, LC, DD
and NE)

For further information see
Brehm et al. 2010

METHODOLOGY

Setting priorities for CWR conservation in Benin



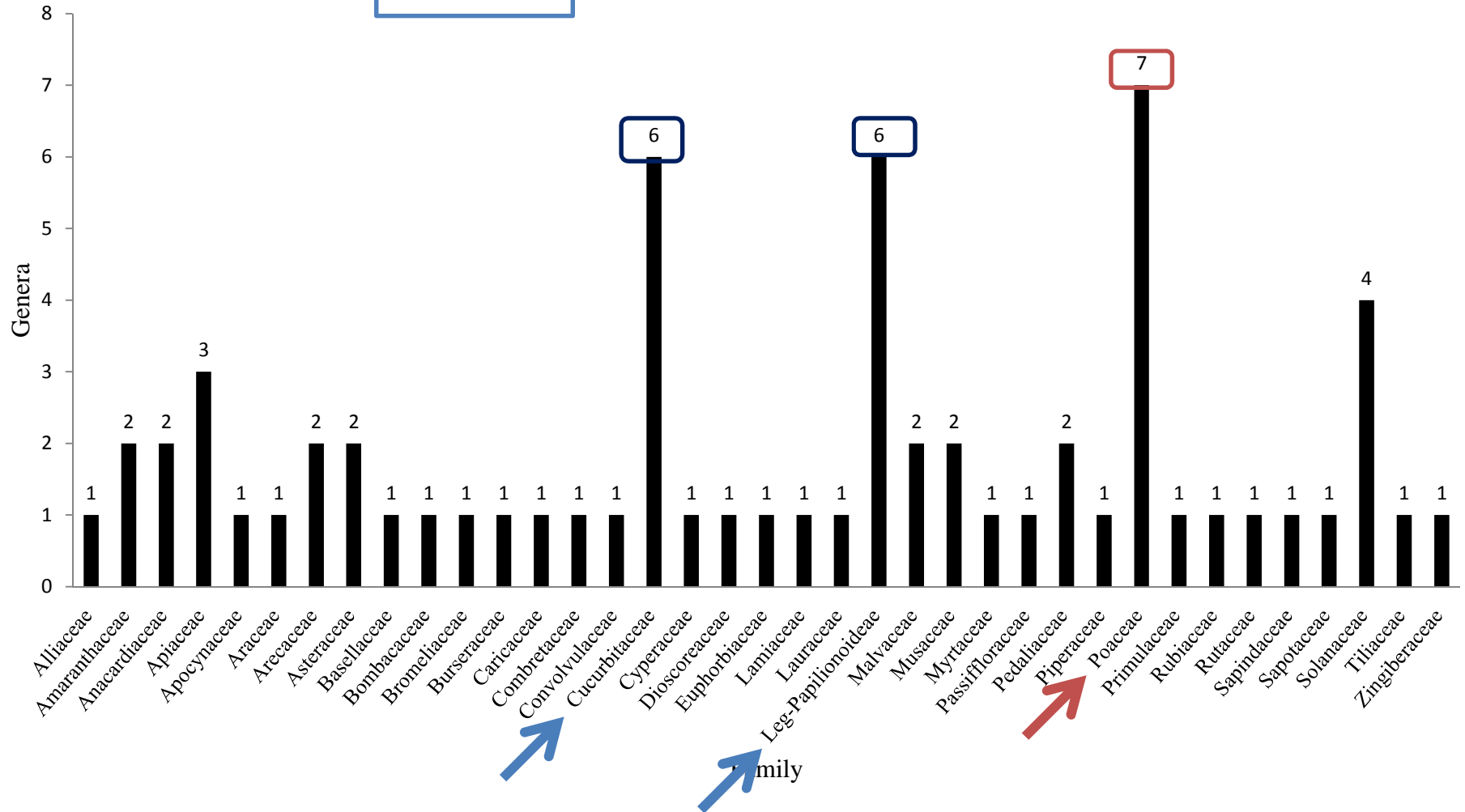
RESULTS & DISCUSSION

266 species

65 genera

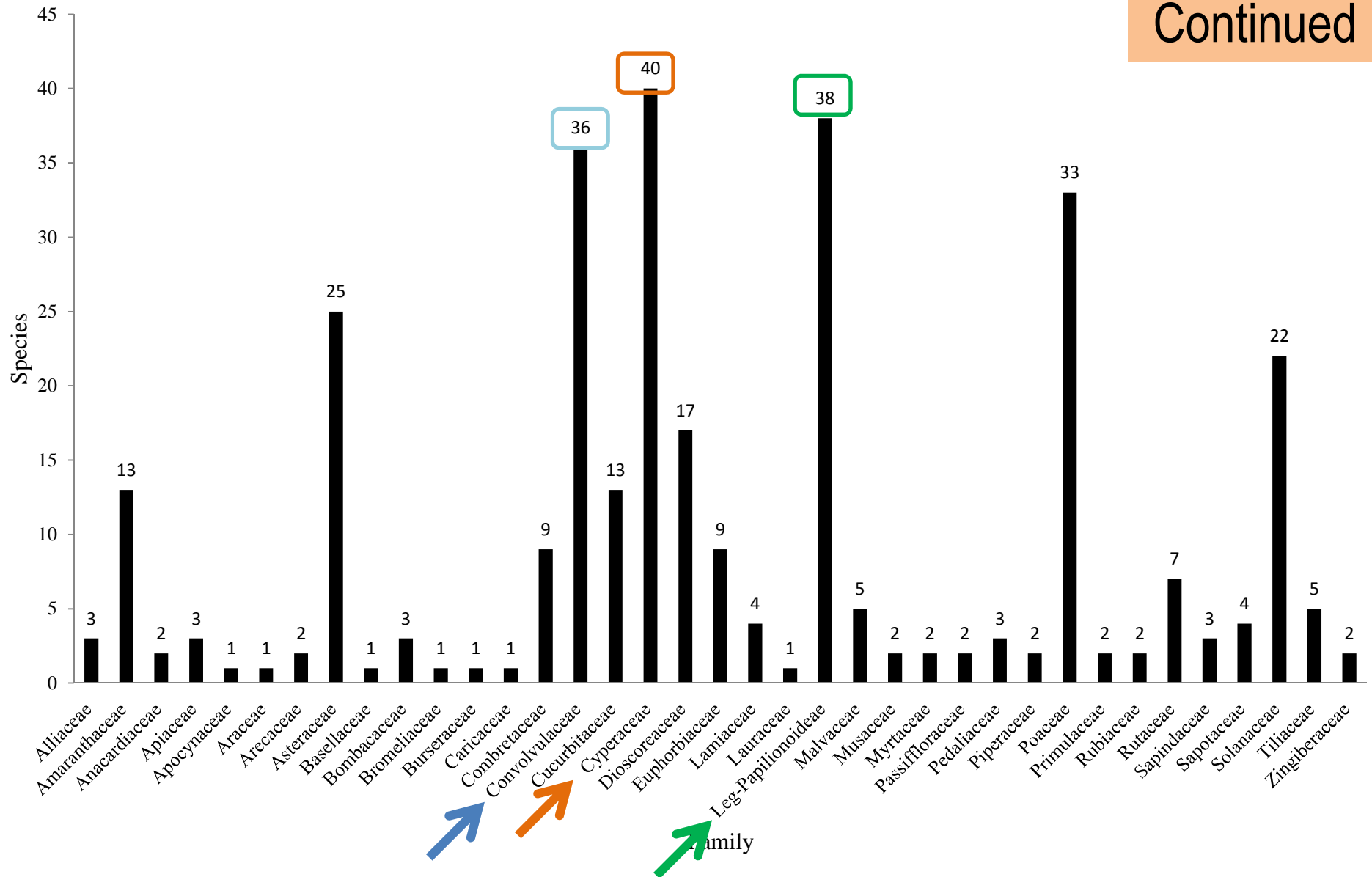
36 families

Diversity of CWR in Benin

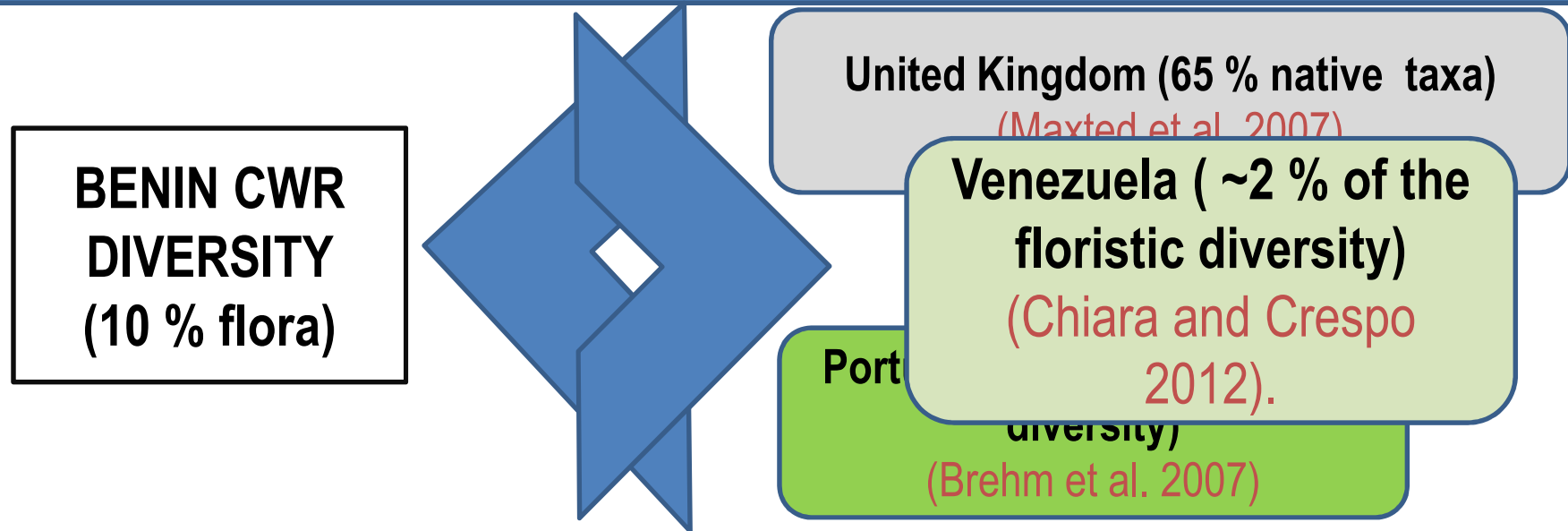


RESULTS & DISCUSSION

Continued



RESULTS & DISCUSSION



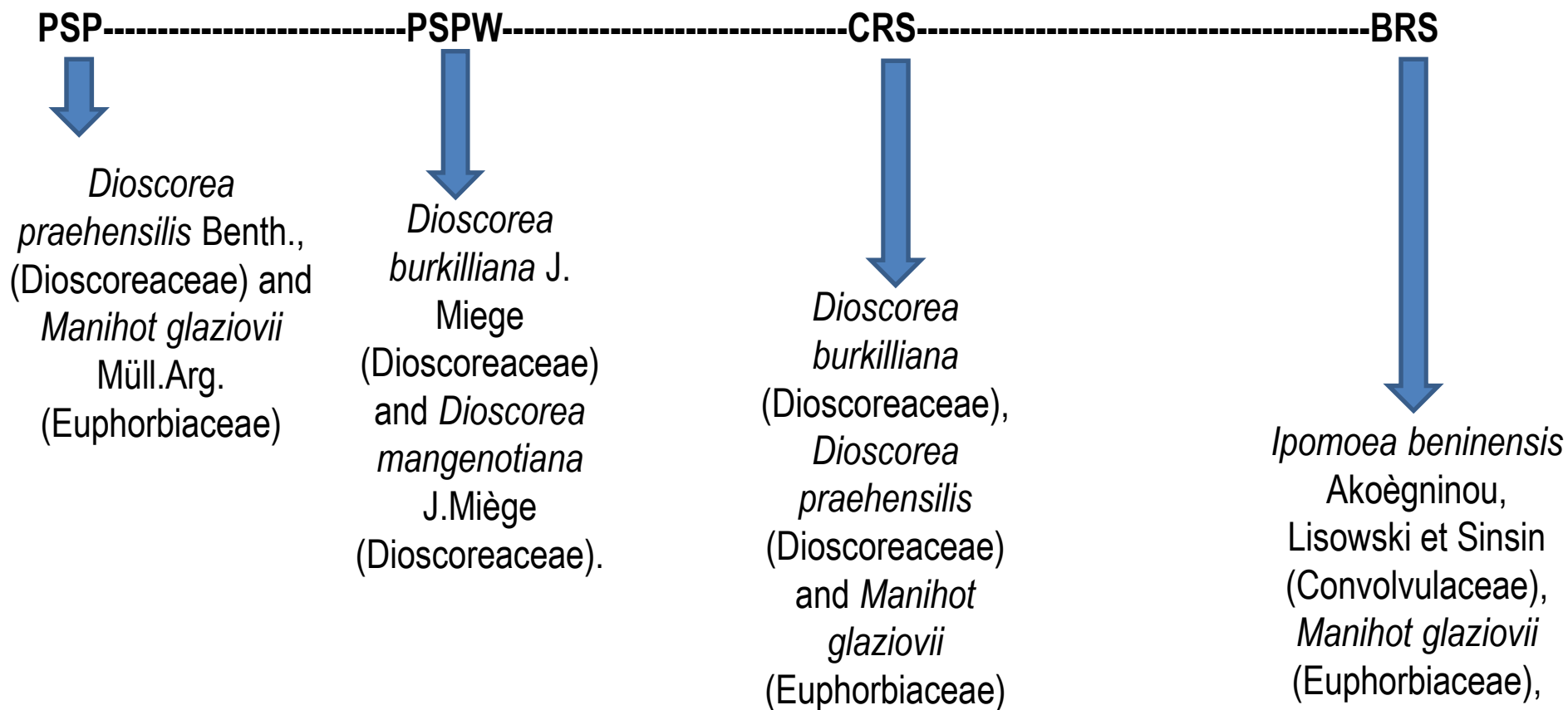
Explanation: method used to produce the inventory was based on native food crop gene pools, and that many Benin crops (corn, cashew nuts, pineapple, peanuts, papaya, citrus fruits, spinach, etc.) are of exotic origin (MAEP 2010).



Small proportion of native crops and a corresponding native CWR diversity.

RESULTS & DISCUSSION

Prioritization of CWR conservation in Benin



RESULTS & DISCUSSION

Species	PSP	PSPW	CRS	BRS	Occurrence
<i>Piper guineense</i> Schumach. & Thonn.	1	1	1	1	4
<i>Manihot glaziovii</i> Mull.A.	1	1	1	1	4
<i>Dioscorea burkilliana</i> J.Miège	1	1	1	1	4
<i>Dioscorea praehensilis</i> Benth.	1	1	1	1	4
<i>Dioscorea togoensis</i> Knuth	1	1	1	1	4
<i>Ipomoea beninensis</i> Akoègninou, Lisowski & Sinsin,	1	1	1	1	4
<i>Corchorus trilocularis</i> L	1	1	1	1	4
<i>Pennisetum glaucum</i> (L.) R.Br. ssp. <i>violaceum</i> (Lam.) Rich.	1	1	1	1	4
<i>Pennisetum macrourum</i> Trin.	1	1	1	1	4
<i>Blighia welwitschii</i> (Hiern) Radlk.	1	1	1	1	4
<i>Sesamum alatum</i> Thonn.	1	1	1	1	4
<i>Cajanus kerstingii</i> Harms	1	0	1	1	3
<i>Celosia bonnivairii</i> Schinz	1	1	1	0	3
<i>Cucumis prophetarum</i> L.	1	1	1	0	3
<i>Cyperus papyrus</i> L.	1	1	1	0	3
<i>Dioscorea cayenensis</i> Lam.	1	0	1	1	3
<i>Dioscorea hirtiflora</i> Benth.	1	1	1	0	3
<i>Dioscorea mangelotiana</i> J.Miège	1	1	1	0	3
<i>Dioscorea minutiflora</i> Engl.	1	1	1	0	3
<i>Dioscorea quartiniana</i> A. Rich.	1	1	1	0	3

Perspectives

Enough (IUCN status, legislation and conservation)



Strongly recommended that priorities be reassessed and refined when more detailed information is available.
Updated results

Further researches:

Thorough studies on each priority crop wild relatives including

- Distribution and Ecology
- Traditional knowledge, use pattern and socioeconomic importance
- Current management techniques and ecological gap analyses
- Impacts of climate change on the conservation and sustainable use of the species

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THANKS !!!

