APOCYNACEAE (ASCLEPIADOIDEAE–CEROPEGIEAE)

FIRST RECORDS OF *ORBEA COOPERI* IN GAUTENG AND MPUMALANGA PROVINCES, *FSA* REGION

The last full revision of the genus *Orbea* (N.E.Br.) L.C.Leach by Bruyns (2002), consisted of 56 species distributed throughout Africa and southwestern Arabia with ± 31 species south of the equator and ± 24 in South Africa (Bruyns 2002, 2005). As a result of some taxonomic changes, more species were moved to the genus (Plowes 2004, 2007; Bruyns 2005; Raffaelli *et al*. 2008; Meve 2009) bringing the total in *Orbea* to the current 61 species (sensu Bruyns).

The current known distribution records show that *Orbea cooperi* (N.E.Br.) L.C.Leach occurs in the drier western and central interior of South Africa. Charles Craib and Gillian Condy, Warren McCleland, Tony de Castro and eventually the second author reported the existence of an *Orbea* (presumably *O. cooperi*) from Mpumalanga during 2008–2009. New distribution records were also collected from the Devon area (Leeukop, Gauteng) and near Greylingstad (Platkop, Mpumalanga). The new records constitute a northeastern extension of the distribution range of *O. cooperi* (Figure 5). The habitat at the new sites is stony ground characterized by dolerite outcrops and sheets, surrounded by grassland with predominantly black turf soil. *O. cooperi* grows amongst the rocks in these dolerite outcrops. This habitat becomes waterlogged and muddy in spring and summer after rain. As the season progresses, the soil dries out and becomes hard and cracked in winter. Associated species found at these localities include succulents such as *Crassula setulosa* and *Euphorbia clavarioides*, the karroid dwarf shrub, *Eriocephalus karooicus* and herbs, including *Lessertia* cf. *depressa* and *Jamesbrittenia stricta*, intermixed with other herbs and grasses.

At first, the new records were thought to represent a new species or subspecies based on the flowers that were produced by various cuttings grown in the nursery of the Pretoria National Botanical Garden (PNBG). The flowers of these plants were devoid of vibratile hairs (marginal cilia) and were much smaller than the reported size for *Orbea cooperi* (Figure 6). The exact same plants grown in the PNBG's nursery did, however, in the third

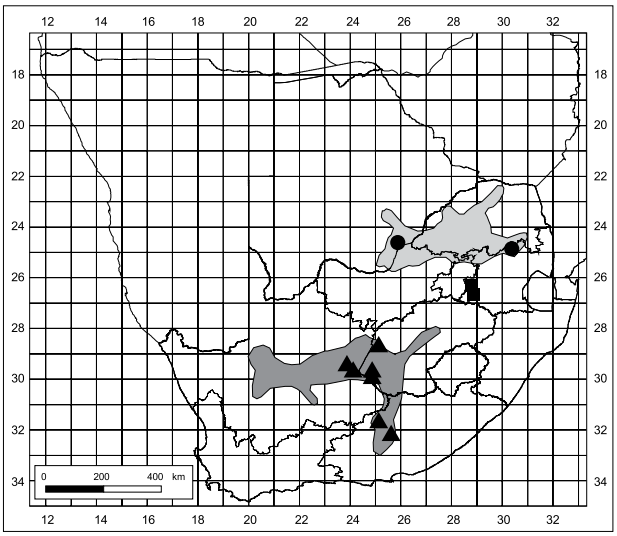

FIGURE 5.—Known distribution adapted from Bruyns 2005 of *Orbea tapscottii* (shaded light grey) and *O. cooperi* (shaded dark grey). Point records for material housed at PRE as follows: *Orbea tapscottii*, ●; *O. cooperi*, ▲. New distributions of *O. cooperi* reported here, ■ (both sight records and herbarium specimens at PRE).

year of flowering produce normal-sized flowers. In addition, the second author also collected flowering material from a site in the vicinity of Greylingstad, Mpumalanga, that was furnished with vibratile hairs. Therefore, the first author could confirm in 2009 that all these new records were *Orbea cooperi*.

The first sterile cutting presented by Craib was thought to be *Orbea tapscottii* (I.Verd.) L.C.Leach. *Orbea cooperi* and *O. tapscottii* are closely related. The main distinguishing characters are listed in Table 1 for comparison. It has been proposed that because of the absence of marginal cilia in the Devon population, it may warrant assignment of subspecific rank (Darrel Plowes pers. comm.). The authors are, however, uncertain whether this would be wise, as specimens from the Leeukop population do possess marginal cilia. Although no other populations between Devon and Leeukop have been located, the habitats are similar to each other and markedly dissimilar to other habitats of *O. cooperi*.

TABLE 1.—Comparison of main characters to distinguish between *Orbea cooperi* and *O. tapscottii*

Features	*O. cooperi*	*O. tapscottii*
Tubercles	4–8 mm long	10–25 mm long
Flower diameter	22–35 mm	20–60 mm
Annulus	Sometimes somewhat raised and thickened	Clearly defined
Inner corona	As broad as outer corona lobes	Much thinner than outer corona lobes
	Much shorter than in *O. tapscottii*	Much longer than in *O. cooperi* forming a column above centre of flower
	Apical ends without papillate knob	Apical ends thickened and ending in distinct papillate knob
Habitat	Karoo vegetation	Savanna vegetation

Proper investigation of a large quantity of flowers at each population needs to be done in order to resolve this issue.

This new distribution is, however, disjunct from any of the other known collections made of this species. This may indicate (as for many other species) that vast areas still need to be surveyed in order to ascertain the complete distribution range of this taxon (and many others). In addition, the vegetation at the newly discovered locations in Mpumalanga is open grassland with predominantly black turf interspersed by dolerite outcrops and intrusions, which makes that habitat quite unusual for this taxon. The distribution of *Orbea cooperi* and its nearest relative *O. tapscottii* is given in Figure 5. The listed new records all come from an area between the distribution ranges of these two sister species. *Orbea tapscottii* is usually associated with acacia savanna and *O. cooperi* is mainly found in both karoo and acacia savanna vegetation.

Voucher specimens of new collections of Orbea cooperi

GAUTENG.—2628 (Johannesburg): Highveld Bridge, Farm Leeuwkop, ± 2.15 km directly N of Devon, 26°20'06.7" S, 28°47'01.0" E, (–BD), fl. 13-11-2008, *Bester 8539* (PRE!).

MPUMALANGA.—2628 (Johannesburg): Balfour Dist., Farm Platkop just outside Greylingstad, 26°41'00" S, 28°51'41" E, (–DB), fl. 29-11-2009, *Berruti 53A* (PRE!); 26°41'02.58" S, 28°51'41.46" E,

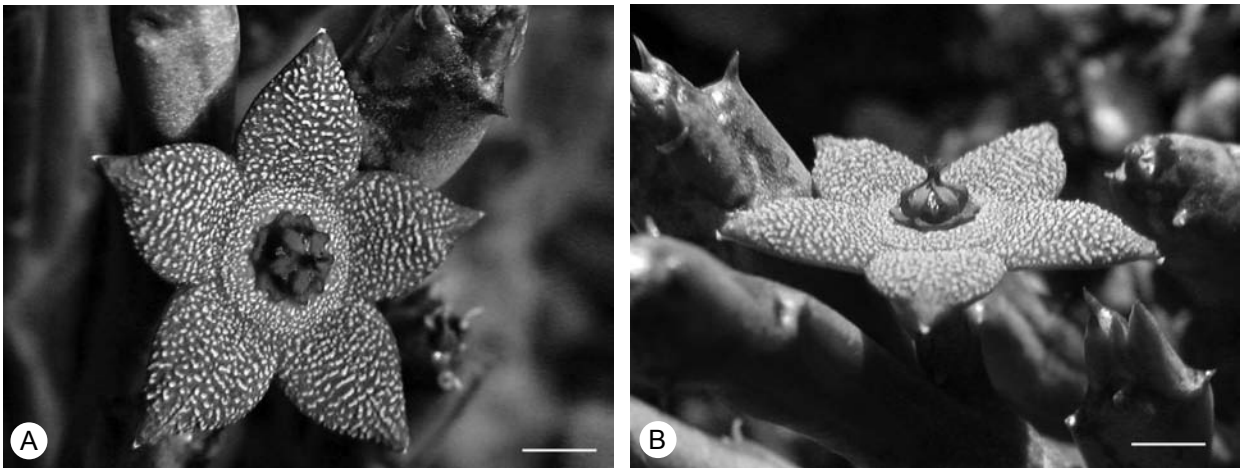

FIGURE 6.—Flower and stems of *Orbea cooperi* from Leeukop locality, *Bester 8539*: A, vertical view; B, angled side view. Scale bars: A, B, 6 mm.

Berruti 53B (PRE!); 26°40'59.76" S, 28°51'42.6" E, fl. 3-10-2009, *Berruti 52* (PRE!); Lucas Kloppers' farm, 26°39'49.92" S, 28°51'57.78" E (sight record, S. Berruti); Farm Platkop, 543 IR, rocky area adjacent to district road, 26°39'46" S, 28°51'54" E, fl. 22-02-2009, *McCleland PRE850944* (PRE! in spirits).

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