# The Black Lace Cactus – an evaluation

Peter Berresford

An account of a visit to Southern Texas, to investigate the choice and rare *Echinocereus fitchii* ssp. *albertii*, on private ranch land.
Photography by the author, except where stated.

After an absence of eleven years, 2011 saw my return to Texas with very specific goals in mind. On my first trip with Jos Huizer (Berresford 2001) and the experience of a trip to Mexico fresh in our memories, we had been disappointed by the difficulty of access to land in Texas. Nearly all land which did not form a part of a State or National Park was clearly demarcated as private. For our purposes, this was invariably ranch land and in many cases, on investigation, the owner from whom we might have sought permission lived in a city, several hundred miles away, or was absent. For casual cactus 'hunting' with a photographic purpose this was most frustrating. During the time that has passed since that trip, the internet has evolved rapidly and email has become more viable as a means of effective communication for planning such trips. Finding out who owns the land in advance is still, however, a difficult process involving drawn-out communications.

In March, Simon Mentha and I passed through El Paso on the western state boundary with New Mexico and headed south-east. Several days and over 700 miles of driving later we arrived in South Texas, not far from the coast of the Gulf of Mexico and the border with Tamaulipas, Mexico. Our target was to investigate the Black Lace Cactus, *Echinocereus fitchii* ssp. *albertii*.

The nomenclatural history of this plant is somewhat convoluted. Lowry (1936: 20) was the earliest to describe it and he gave it the provisional name of *Echinocereus melanocentrus*, comparing it with, and considering it to be different from *Echinocereus perbellus*.

Backeberg (1960: 2028, 2030–2031) took up Lowry's name and correctly validated it by providing a Latin diagnosis and a single illustration, which is automatically its holotype. The type locality is Kleberg, near Alice.

Benson (1969: 127) then confusingly published it as a completely new taxon, *E. reichenbachii* var. *albertii*, typified by a plant also collected from near Alice.

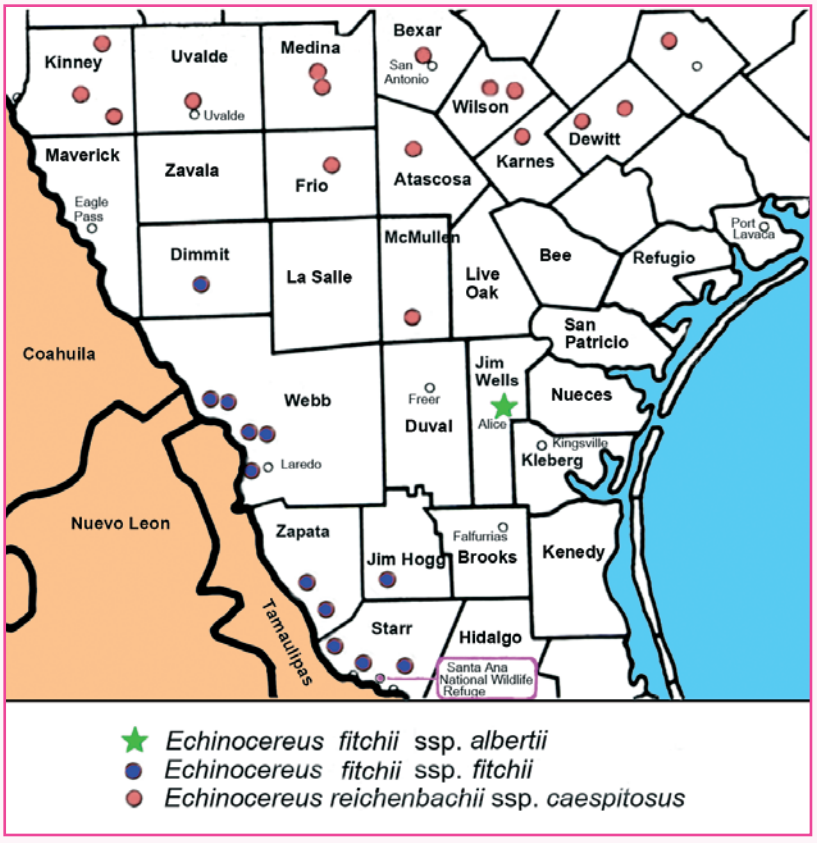


**Fig. 1 Distribution of *Echinocereus reichenbachii* and *E. fitchii* in South Texas (Graphic: Roy Mottram)**

**Fig. 2 *Echinocereus fitchii* ssp. *fitchii* north of Laredo**

**Fig. 3 Left to right: Dave Smith, Dr Elizabeth Smith, the author, Robyn Cobb (Photo: Simon Mentha)**

**Fig. 4 *Echinocactus texensis*, Refugio County**

Blum and Lange (1998: 313 [1998 preprint: 5]) used Benson's epithet to create *E. fitchii* ssp. *albertii*. Actually they had a free and equal choice of epithet in the new rank and could have equally well recombined *E. melanocentrus*, but they believed erroneously that Backeberg's name was invalidly published.

This means that if it is considered to be a species, *E. melanocentrus* is its correct name, but at subspecies or varietal ranks the correct epithet is *albertii*. Taylor (1985: 133) considered the taxon to be not distinct from *E. reichenbachii* ssp. *fitchii*, a position also followed by Hunt (1999: 184; 2006: 344), while Anderson (2001: 246) equated it to *E. reichenbachii* ssp. *perbellus*. It is named by Federal and State agencies in USA as *E. reichenbachii* var. *albertii*, as they generally follow Benson's nomenclature.

Travelling into South Texas (defined by 'South Texans' as east of the Rio Grande and below San Antonio), the dominance of cattle ranches gradually changes and more arable agriculture becomes evident. When we visited in early April, small shoots were appearing from the black loamy soil over largely flat landscapes. Grain sorghum (used for fodder), cotton, onions and citrus fruit form the produce from this region although cattle are still in evidence on less developed property. A transposition of the area of south Texas over the mapped locations of the *E. reichenbachii* group and *E. fitchii* is interesting. It reveals that only *E. fitchii* ssp. *fitchii* and ssp. *albertii* grow anywhere in south Texas, with the exception of a disjunct population of *E. reichenbachii* ssp. *caespitosus* in McMullen County (Blum et al. 2005: maps 85–88). It is also worth noting that *E. fitchii* ssp. *albertii* grows some 140 miles away from the nearest *E. fitchii* ssp. *fitchii* (Fig. 1).

**Fig. 5 (right) *Echinocereus fitchii* ssp. *albertii* dug out by feral pigs**

Before visiting *E. fitchii* ssp. *albertii* we wanted to visit *E. fitchii* ssp. *fitchii* in habitat to obtain some comparative idea of spination, growth forms, soil and associated vegetation. This plant grows principally in the low-lying flood plain of the Rio Grande, in five counties. In 2000, we had travelled for miles on a dirt road along the border with easy access to the land on either side of the road and I had a poor photograph of this plant. In the intervening years, by looking at Google Earth, I could see that the highways department had improved this road which was now metalled, but I believed I could see access tracks which might allow us to achieve our goal. It was a little depressing to arrive and find that, apart from the new road surface, large areas of the roadside had been cleared and replanted with non-native grass species that had eliminated all competition. Nevertheless, access was duly found and a short foray into the 'unimproved' land revealed examples of the plant that we sought. The scrub here was quite dense but it was good to see other cacti (*Thelocactus setispinus* and *Echinocereus enneacanthus* ssp. *brevispinus*) surviving the roadworks. The pale spination on *E. fitchii* ssp. *fitchii* was quite dense, with radial spines intersecting radials from neighbouring

**Fig. 6 *Echinocereus fitchii* ssp. *albertii* losing ground to fire ants**

**Fig. 7 The dark, easily visible stems of *Echinocereus fitchii* ssp. *albertii***


**Fig. 8 Juvenile *Echinocereus fitchii* ssp. *albertii* thriving in ant-generated soil**

areoles below and above, hiding most of the stem of the plant. Only where radial spines met radials from adjacent ribs could any of the stem be seen. Noticeably, each areole had several central spines, some of which were tipped brown (Fig. 2). Three days later we resumed our search for *E. fitchii* ssp. *fitchii* at another location but in the meantime our thoughts turned to the following day.

For years, I have had one or two plants of *E. fitchii* ssp. *albertii* in my greenhouse from various sources with no habitat data and little was known about these plants in Europe apart from the short type locality of 'Jim Wells Co., near Alice' (Benson). My idea for trying to visit the plant in habitat was stimulated by the report (Felix & Blum 2006) that two members of the German society Arbeitsgruppe Echinocereus had successfully located the plants.

In 1987, a recovery plan was published by the US Fish and Wildlife Service (USFWS). It was clear that there was work afoot to study and protect existing populations with the objective of trying to improve the Federal endangered species status record since the last census in 1979. The study indicated that there were

**Fig. 9 (right) The flower of *Echinocereus fitchii* ssp. *albertii***

three known populations of *E. fitchii* ssp. *albertii*, all on private land. However, the original location had been all but destroyed by brush clearance leaving an estimated two dozen plants. Benson had described the plant from an adjacent location (Benson 1969: 125), which in 1985 still remained largely undisturbed, but "some recent brush clearing has occurred nearby and plans for future range improvements are unknown" (Cooks, 1979). A follow-up Five Year Review (USFWS 2009) indicated that "conversion of land cover for agricultural purposes [is considered to be one of the] potential causes for decreases in the BLC (Black Lace Cactus) population there". An attempt to locate the landowner to generate awareness and interest in the subspecies in 2008 had failed. With the future of this plant seemingly resting in the hands of private landowners, our feelings about visiting the other two sites were mixed.

After spending a very pleasant morning at Aransas National Wildlife Refuge on the Gulf Coast we headed to our pre-arranged rendezvous with Robyn Cobb (Fish & Wildlife Biologist with USFWS) who had made arrangements with the landowner for us to visit the *E. fitchii* ssp. *albertii* population in Refugio County. Although several miles from the sea, this is a near-tidal river. We were joined by Dr Elizabeth Smith who works for the International Crane Foundation and her husband Dave, both keen conservationists and both on friendly terms with the landowner (Fig. 3). Because of the fragile state of the remaining two populations, we avowed that we would give no detailed location details in any report that we produced. Descriptions of the nature of the habitat have already been published and we were soon zig-zagging around fields. With little sun to provide us with orientation, we soon lost our way and arrived at a gate into what was clearly 'un-improved' land. The ranch is used for hunting, and photographs demonstrate that before 1965 it was cleared of mesquite (*Prosopsis glandulosa*). Since then Tamaulipas scrub has re-established itself. The population

**Fig. 10 (right) Strong central spines on *Echinocereus fitchii* ssp. *albertii* in Kleberg County**

**Fig. 11 Cristate form of *Echinocereus fitchii* ssp. *albertii***

**Fig. 12 Multiple flowers on *Echinocereus fitchii* ssp. *albertii***

**Fig. 13 Multiple flowers on *Echinocereus fitchii* ssp. *albertii*, overhead view of plant in Fig. 12**

**Fig. 14 *Echinocereus fitchii* ssp. *albertii* – adding colour to the desert**

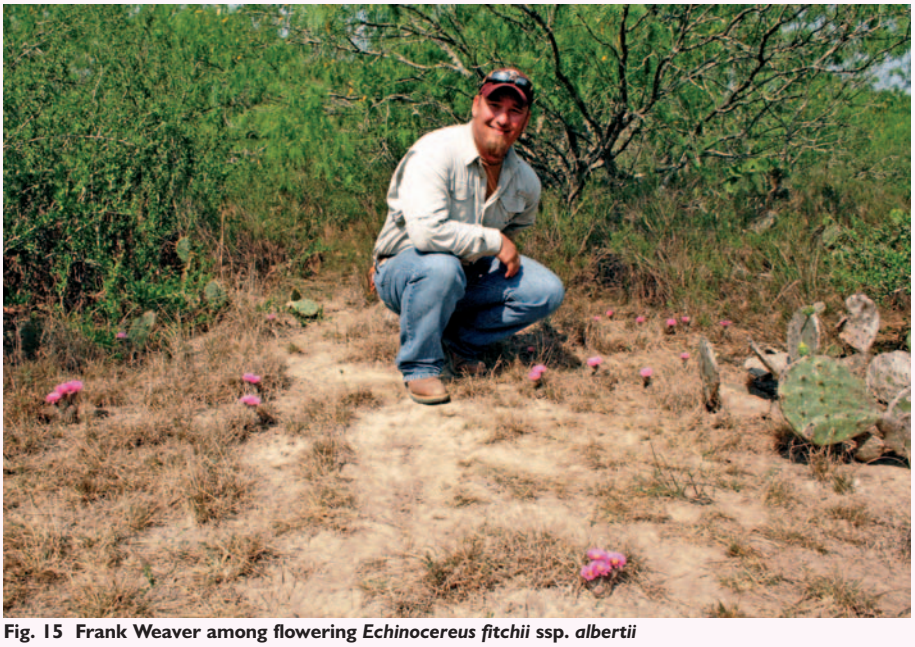

**Fig. 15 Frank Weaver among flowering *Echinocereus fitchii* ssp. *albertii***

is described as scattered and patchy over some 42 acres of land. I suspect that we were guided to a reasonably dense population because in a few minutes we stood, looking at "BLCs", in a clearing amongst the mesquite. The sandy silt in which the plants grow has been deposited by a tidal river and the plants have quite clearly adapted to the saline soil, happy in the company of other halophytes such as salt marsh grass (*Monanthecloe litoralis*) (USFWS 2009). Other cacti on the site included *Opuntia engelmannii*, *O. leptocaulis*, *Thelocactus setispinus*, *Mammillaria heyderi* ssp. *hemisphaerica* and *Echinocactus texensis* (Fig. 4). Robyn pointed out lotebush (*Zizyphus obtusifolia*), Texas holly (*Berberis trifoliata*) and other shrubs.

Many of these plants exhibited maturity and were profusely branched with a thick basal stem, possibly the result of the shrub clearance in 1965 which destroyed the top of the plant but left the thick base and taproot in situ. There was evidence of disturbance and uprooting of some of the plants, which we were told was the result of feral pig activity. One plant had been completely removed with the root still intact and we decided to replant this (Fig. 5). The nature of the soil then became clear. The top inch or so was very hard and compacted and required persistence to hack through. Below this was a soft fine silty clay into which an appropriate hole could be excavated for our plant. Fire ants seem to associate themselves with the large clumps of *E. fitchii* ssp. *albertii*. With what purpose was unclear, but in some cases the resulting earth excavated is threatening to cover the plants (Fig. 6).

Remembering the *E. fitchii* ssp. *fitchii* that we had seen only a day ago, the plants here were very different and on many the dark stem was visible not only between the ribs but even between the areoles above and below (Fig. 7). In marked contrast to ssp. *fitchii* most of the plants on this site showed little evidence of a central spine or if it existed it was fairly weak. The tips of

**Fig. 16 A bee pollinating *Echinocereus fitchii* ssp. *albertii* (Photo: Frank Weaver)**

**Fig. 17 The dense brown spination of *Echinocereus fitchii* ssp. *fitchii* in Starr County**

spines tended to be black. Seedlings were in evidence, many seemingly taking advantage of the ant's spoil heap (Fig. 8). Flowers, however, were not plentiful (Fig. 9), and a thin layer of cloud was not providing much encouragement. On leaving the site we were pleasantly surprised to hear that the current owner of the land was keen to ensure the survival of the plant and had no plans to change the current land use.

The next day Robyn had arranged for us to meet Franklin ('Frank') Weaver to take us out to the Kleberg site. Frank is using the *E. fitchii* ssp. *albertii* here to determine the accuracy of various methods of evaluating numbers in a population in his thesis for a Masters degree in Conservation Biology at Texas A&M University, Kingsville, and is also a wildlife biologist for USFWS. We met at a gas station at 8am and were soon on site. In fact we had arrived before the flowers opened but spent some time investigating the three sub-populations.

The plants at the Kleberg site are remnants of a larger population, much of which had been diminished by brush clearing, but the remaining areas have not been disturbed. Some of the scrub here is quite dense, but the plants seem to favour clearings with little cover. The soil here is a little different, being sandy loam, but the proximity to tidal creeks again indicates that the plant is not averse to some salinity in the soil. Most plants here showed a strong central spine (Fig. 10). As we waited for flowers to open we continued searching among the plants for unusual traits and we were very surprised to find a cristate plant (Fig. 11).

The morning passed quickly and as the sun shone, it was only a question of time until the flowers began to open (Figs. 12–14) and we had a veritable bonanza. Frank was especially delighted (Fig. 15). Frank also managed to get shots of a bee (*Diadasia* sp.) which was pollinating a plant (Fig. 16). Everyone left the site feeling very satisfied with the morning's work.

**Fig. 18 Young *Echinocereus fitchii* ssp. *fitchii***

**Fig. 19 Clusters of central spines on *Echinocereus fitchii* ssp. *fitchii***

Early the next day we had arranged to meet Kim Wahl (Plant Ecologist, USFWS) at Santa Ana National Wildlife Refuge (NWR), who had agreed to escort us onto some USFWS-managed land in the Lower Rio Grande Valley. This was some two hours drive from where she was based. Our objective was to find some more examples of *E. fitchii* ssp. *fitchii* for comparison with *E. fitchii* ssp. *albertii*. Again, we agreed not to divulge the exact location. The sun shone as we arrived, and we started to pick our way through the shrubs.

The soil here is termed as Maverick (after Maverick Co., Texas) in type. The top six inches are "light olive-brown clay…fine, subangular blocky structure; hard when dry, the half-inch surface crust is light yellowish brown when dry and has weak, platy structure with a few broken marine shells, being calcareous…moderately alkaline" (US Dept. of Agriculture 1972). This area was probably the easiest to walk around without being scratched or stabbed and we quickly found several plants. Some of these showed a rather attractive brown spination (Fig. 17), and there were a few immature plants revealing a healthy population (Fig. 18). Central spines were clearly in evidence (Fig. 19), and we were left in no doubt that *E. fitchii* ssp. *albertii* was clearly a distinct subspecies. As Chris Best (State Botanist, Texas, USFWS) had commented earlier, "most of us who have seen both *fitchii* and *albertii* in the field concur that these are taxonomically distinct".

ACKNOWLEDGEMENTS:

Chris Best (State Botanist, USFWS) for all USFWS contacts and for his friendship and help in planning the trip. Simon Mentha for his company, humour and enthusiasm. Robyn Cobb and Dr Elizabeth Smith for their help, time and company at the Refugio site. Frank Weaver for his enthusiasm, friendship and time at the Kleberg site. Kim Wahl for most of her day, pleasant company and for driving unreasonable distances.

LITERATURE CITED:

Anderson, E F (2001) *The cactus family.* Timber Press, Portland.

Backeberg, C (1960) *Die Cactaceae* **4**. Veb Gustav Fischer Verlag, Jena.

Benson, L (1969) The cacti of the United States and Canada – New names and nomenclatural combinations – 1. *Cact. Succ. J.* **41**(3): 124-128.

Berresford, P (2001) Hunting the hedgehog 2 – Up the Rio Grande to Big Bend. *Brit. Cact. Succ. J.* **19** (2): 64-69, **19** (3): 114-121.

Blum, W, Lange, M, Rischer, W, & Rutow, J (1998) *Echinocereus monographie.* Privately published, Aachen.

Blum, W, Felix, D & T, Oldach, J (2005) *The Echinocereus reichenbachii-fitchii complex.* Arbeitsgruppe Echinocereus der Deutschen Kakteengesellscahft e.V., Bietigheim.

Britton N L, & Rose, J N (1922) *The Cactaceae* **3**. The Carnegie Institution, Washington.

Cooks, R S (1979) *Determination that Echinocereus recichenbachii var. albertii is an endangered species.* Texas Federal Register 44: (61918-61921)

Felix, D & Blum, W (2006) An Standorten des *Echinocereus fitchii* ssp. *albertii* (L.Benson) Blum & Lange...ein Traum wird wahr! *Der Echinocereenfreund* **20**(1): 25-33.

Hunt, D (1999) *CITES Cactaceae checklist. Second edition.* Royal Botanic Gardens, Kew.

- (2006) *The new Cactus Lexicon.* dh books, Milborne Port.

Lowry, W E Sr. (1936) Southern Texas cacti. *Desert Plant Life* **8**(2): 20-21.

Poole, J et al (2007) *Rare plants of Texas.* Texas A&M University Press.

Taylor, N P (1985) *The genus Echinocereus.* Collingridge, for Royal Botanic Gardens, Kew.

US Department of the Interior, Fish and Wildlife Service (1987) *Black Lace Cactus* (*Echinocereus reichenbachii var. albertii*) *recovery plan.* USFWS, Albuquerque, New Mexico.

US Fish and Wildlife Service (2009) *Black Lace Cactus* (*Echinocereus reichenbachii var. albertii*) *5-year-review: summary and evaluation.* Corpus Christi Ecological Services Field Office, Corpus Christi, Texas.

US Department of Agriculture Soil Conservation Service (1972) *Soil survey of Starr County, Texas.*

Peter Berresford
Nelson House, Calton, Skipton, North Yorkshire,
BD23 4AD, UK
Email: peter.berresford@virgin.net

*Layout by David Quail*