

## National Collection – Mammillaria spp.

The National Collection for the genus Mammillaria (Cactaceae) will be housed at ARDENCRAIG GARDENS on the Isle of Bute, Scotland. The Gardens are run by the local area parks dept of Argyll and Bute Council. The gardens include a glasshouse complex which is open to the public. One of the houses has a central bed which has been planted with large upright cactus.

The summer of 2006 saw the start of a complete rebuild with a new glasshouse range which is on target to be finished in May 2007. In the autumn of 2006 I approached the head gardener at Arden Craig and explained what I was hoping to do with regard to a National Collection. He explained that once the building work was completed they were hoping to work on and build up their own cactus collection. At present we have a verbal agreement whereby they will allocate me some bench space for the National Collection and in return I will donate plants from the seed raisings. Already I have been able to obtain 60 non Mammillaria cactus plants for their collection from members of the BCSS. The gardens have indicated that they may be able to allocate a whole glasshouse to the project at a later date.

The sole responsibility for the N/C will rest with me. I will fund all aspects and keep all records and maintain the collection. All plants donated to Arden Craig gardens will be the responsibility of the gardens. I will be more than happy to help and give advice as and when required.

**Nomenclature** : for the genus Mammillaria is based on Cites Cactaceae Checklist, 2 nd Edition (CCC2), ISBN 1-900347-45-8. Dr David Hunt, Royal Botanic Gardens, Kew. 1999. CCC2 accepts 145 species, 91 subspecies and 28 provisionally accepted species/subspecies. Total 264.

**Taxonomy/Classification** : is that proposed by Dr David Hunt in 1987 and can be found in print in the Cactus file handbook, number 6, Mammillaria by John Pilbeam. These two subjects are updated in a quarterly publication titled Cactaceae Systematics Initiatives (CSI) by Dr David Hunt

**Origin Key** : the collection intends to adopt where feasible an Origin Key to denote the origin of the plant material. The key was originally devised by the South American cactus group (The Chileans) and has been used by one commercial nursery.

- H Habitat collected plant
- Y Grown from seed of habitat plant pollinated in cultivation
- Z Grown from seed pollinated in habitat
- + Vegetative propagations from H (H+), Y (Y+), Z (Z+)
- C Origin of seed unknown.

**Labeling** : the label will contain the following information..

Plant name as stated in the Cites Cactaceae Checklist

Acquisition number. Only single potted plants will be give an Aq/N, not pots of seedlings.

Where necessary a field collection number

Where necessary an origin key letter

The acquisition number will be written on the side of the pot as an added precaution of label removal.

**Checklist**. There will be three checklists which indicate what species/subspecies/field number is in the collection and what stage of growth .i.e

- a) Seed...awaiting sowing and seed in the process of being sown. Seed sowing starts in Jan and finishes end of May.
- b) Seedling....germinated seedlings.
- c) Plant.... single potted plants.

**Plant Material.** the stated aim of the N/C is were ever possible to obtain documented plant material, seed or plants. Before the ban on exports of plant material from Mexico came into force in 1980, a large number of cactus plants were removed from habitat and brought into European collections. Many of these plants did not survive but a small number did and they are still in collections today. I hope to appeal to members of the various cactus societies for offsets of these plants. We will also act as a retirement home for those members who are looking to give up there collections.

In the past there been a huge amount of documented Mammillaria seed from field collectors such as Lau, Lacoste, Brack and Reppenhagen available from commercial sources. In the last few years field collections from Rogozinski, Linzen and wolf have started to appear on the seedlists. Just to give three examples.....M albilanata and its four subspecies have 64 field collections. M candida has 80 field collections and M formosa subspecies formosa has 89 field collections.

Further, it is a stated aim that the collection will not knowingly encourage the collection of illegal plant material. It has to be recognized that plant material that could be considered illegal is available via commercial sources and as such the collection reserves the right to obtain such material via this source.

I would like you clarify the above statement by saying that I do not know or believe that plants are being illegally imported into the UK by commercial nurseryman. However I do believe that plants grown from illegally collected seed are finding there way onto commercial sales lists and that it is these plants that could be CONSIDERED to be illegal. I not believe there is large scale collection of seed but that it is the odd individual who is on holiday and collects a few seed pods. Once home he sows the collected seed. Keeping the plants he wants, he sells the remaining plants at the local branch meeting or branch show and in a round about way these plants appear on the nursery sales list.

**Reseach Aspects.** : subjects for positive and practical research are limited as much work is how done when new species are being described, but I believe I may have identified three areas where a N/C could be of benefit.

#### **A) *Conservation.***

CITES considers, for many reasons, many Mammillaria species to fall into the category of RARE, ENDANGERED and CRITICALLY ENDANGERED categories. Some species are only known from single locations. To give just one example M.laii is found on one hill in the Mexican state of Tamaulipas. At that location three subspecies have been described from three different altitudes..., M laii laii 1,000-1,600m. M laii dasyacantha 1,400-1,700m and M laii subducta 800m. At the location of M laii laii there was a small village which has under gone serious expansion in the last ten years. The site of M ssp. laii is now a rubbish tip and the site of M ssp.subducta is under serious treat as the area above is being levelled for building and the location is slowly being buried. If the village/town continues to expand at the present rate the both subspecies could become extinct in habitat. Mammillaria columbiana ssp yucatanensis is considered to be extinct in the wild.

One aspect of conservation would be conservation ex situ i.e conservation in cultivation. Too much emphasis is placed on conservation in habitat. The NCCPG requires three plants of each field collection to be grown. We intend to grow a greater number than the required three plants of each field collection of species that fall between the categories of Extinct and Vulnerable, as set out in the booklet IUCN Red List Categories and Criteria: version 3.1 (2001). The aim is to have core group that could be used for propagation and for any future reintroduction project, by such means as micro-propagation, off-sets and controlled pollination to produce seed.

There could be a possibility that we could involve the local school in such a project.

### **B) Germination details.**

As part of my record keeping I note when each lot is sown and when each lot first show signs of germinating. Under my conditions I am able to inspect the propagator twice daily. Of course no conclusions can be reached after two years but already there are a few items of interest. After a number of years it may be possible to correlate the records and produce optimum germinations times for certain species.

### **C) Fruit Maturation.**

This subject was first raised by Dr David Hunt in the Mammillaria Society Journal ( Vol 43 No3. August 2003). In an article on fruit maturation he stated by " there is no doubt that the interval between flowering and fruit maturation is a significant distinction between certain species" He also pointed out that fruit colour "is also worth observing and may be useful taxonomically" Fruit maturation is a little studied and could be a interesting subject to look at.

## **Year 1 (2006)**

172 lots of seed were purchased from commercial sources and from the UK Mammillaria Society seed list. Sowing began in April in a heated propagator holding 38 6cm pots. Once germinated, the seedlings were placed in basic plastic propagators and stood outside for the summer and brought in for the winter.

Unfortunately due to the very wet climate here on the west coast of Scotland and the lack of time on my part due to business commitments only 89 lots came through the winter. During the year an appeal was made in the Mammillaria Society journal and this brought in a number of young plants. I was also able to purchase a small collection of plants from a nursery which was closing down. As a result, there are now 198 ( 89 + 110) Mammillaria species/ subspecies/ field number in the collection ranging from seedlings to plants in 13 cm pots.

## **Year 2 (2007)**

As I write (14-4-07), 221 lots of seed has been purchased this year from commercial sources and the UK Mammillaria Society seed list. I am also in touch with the German Mammillaria Society with a view to ordering 100 lots from their seed list. Seed sowing began in Feb, changing to 5cm pots. This means I can now sow 60 lots at a time. I have identified a number of plants I would like to add from commercial sources. All seed sowing records have been kept on file on the computer.

***Update. 23-5-07***

- a) The collection will be moved up to the cactus house at Ardenciag Gardens on the 28th May.
- b) I have now become a member of the German Mammillaria Society and have obtained a large amount of documented seed from their seed list.
- c) I have been in touch with Dr David Hunt who is a member of the Executive Board of the International Organization for Succulent Plant Study (IOS). He has agreed to become a member of an informal advisory committee which I have formed for this project. There are two other people I intend to ask to join. Bill Maddams, Chairman of the UK Mammillaria society and John Pilbeam, author on the subject and commercial nurseryman.
- d) Dr Hunt has indicated that the IOS intends to revive its Specialist Collections Initiative and a project such as mine might also be worthy of their support once it has developed beyond the seedling stage.

***Update. 13-6-07***

- a) All seed sowing has now finished. There remains 117 packets of seed which will be held over. Seed sowing will start again in Jan.
- b) An acquisition list has now been started and there are, at present 103 plants listed.
- c) There are 313 pots of germinated seedlings in the collection.
- d) Orders have been placed with three commercial nurseries for plants.
- e) A photographic collection of plants in flower has now been started.

***Update. 21-6-07***

11 species/field collections (x 3 of each) from Tony Irons have been added to the acquisition list. Total 114.

***Update. 24-8-07***

The acquisition list now stands at 147 plants. A large number of species and SB field numbers from series Lasiacanthae have been obtained.

NCCPG have acknowledged the application but feel the collection is as yet too young and so have deferred the application for future consideration.

***Update. 03-12-07***

- a) The acquisition list now stands at 190 collections.
- b) An index containing both written details and a photographic record of all collections on the acquisition list has now been finished.
- c) Seed sowing has started again. There are 117 packets of seed remaining from this year's seed sowing which need to be cleared before sowing of the new batch of seed.
- d) Seed orders are now being placed from various sources.

***Update. 05-03-08***

The acquisition list now stands at 216 collections.

An order for plants has been placed with the Reppenhagen nursery has been placed.

Seed from the following has arrived, German Mamm Society (107 lots), the UK Mamm Society (35 lots) Doug Rowland (32 lots) and Koehres (17 lots)

### ***Update. 04-04-08***

**Plants....**There are 221 acquisitions covering 142 species, subspecies and field collections. Seedlings (pricked out, 1-2 years old) 1,920 seedlings, covering 308 field collections of 150 species and subspecies.

**Seed** (sown this year and awaiting sowing) 240 packets.

Once the seedlings have been potted up and added to the main collection at the end of this year there will be something like 450 acquisitions covering 240 species and subspecies.

### ***Update 01-05-08***

Since Nov 2007 219 packets of seed have been sown with a further 72 packets awaiting sowing. Further seed has been obtained from Cactus Heaven, Koehres, Piltz and Wolfgang Plein. The acquisitions list has been increased to 259, with a number of field collection numbered plants obtained from Graham Charles.

Unfortunately I was unable to make any contact with the Reppenhagen Nursery in Austria.

### ***Update 05-10-08***

The Accession list now stands at 435 accessions covering 749 plants. The publication of the Mammillaria Reference Collection article, in the last Mammillaria Society Journal, brought a good response from members with a number of them contacting me with offers of offsets or plants of documented materials.

A number of documented plants have been purchased from an Italian nursery, Il Sole Rarita Botaniche, and more were purchased at the Oxford show at the end of May. A large number of plants that were raised from seed sown in 2006 have now been potted up and added to the list with many more to be potted up in the coming months.

A number of surplus seedlings have been donated to the new cactus collection at Birmingham University and more will be donated as and when they become available.

I am now in the process of placing orders for Mammillaria seed with various seed companies throughout Europe and have already received seed from Cactus Heaven in Malta.

### ***update 6-05-2009***

An exchange of plant material with the Royal Botanic Gardens, Kew has proven rewarding. Has well as a number of forms of *M.vetula gracilis*, including H.7113, we have also received 4 offsets of *M.sphacelata sphacelata* L 1156 which have been taken from the original plant that Alfred Lau sent to David Hunt at Kew in 1986.

One other plant which we received and is of great interest is *M.rhodantha* aff *aureiceps* H.8504. David Hunt collected the seed of this plant from a location just North of Mexico City in 1964 and from what I can find, there are only 4 plants of this collection still in cultivation (this one, 2 still with Kew and 1 possible plant in Bob Stanley's collection ).

A number of plants have been controlled pollinated in an attempt to produce seed. If successful this seed will be donated to the Mammillaria Society to be included in their Seed Distributions.

***update 23-9-2009***

An application has been made to the National Council for the Conservation of Plants and Gardens ( NCCPG ) / Plant Heritage for National Collection Status. The local Area Co-ordinator has visited the collection and the necessary paper work has been completed. The only area of concern they have is with the issue of the age of the collection. While I maintain that a plant should be considered mature once it is able to reproduce, ie flower, fruit and seed and with some Mamm's that could be has little has 2 year's from germination, Plant Heritage believe that a 5 year age limit would be more appropriate in this case.

***update 12-2-2010***

The collection has been granted National Collection Status at provisional level due to the 'lack' of maturity of many of the plants, to be reviewed in 1 year's time.

The accession now list stand at 745. We now take part in the Mammillaria Forum and this has proved excellent has we have been able to exchange plant material with a number of Forum members and have been able to add plants that carry DAR ( Amante Darmanin ), RB ( Robert Bader ), WH ( Walter Helix ) and WTH ( Wolter ten Hoeve ) field numbers.

***update 22-9-2010***

The Accession list has been greatly increased to 1163 and now covers some 2,500 plants. This is a result the many 100's of different field collections that have been raised from seed and added to the main collection.

We now have our own online web-site, [www.mammillariaonepound.com](http://www.mammillariaonepound.com) which includes a Photo gallery and a plant sales list. This plant list, which is updated quarterly, contains many field collections which will be found nowhere else in the UK.

The attempt to produce seed from plants by means of controlled pollination has been successful. Many of the field collections chosen have produced small amounts of seed which will shared with a few other growers while 3 collections have produced enough seed ( 300 + ) to be donated to the Mammillaria Society, M.perbella Rep 1977, M.carnea RB 024 and M.rhodantha aff aurecips H.8504.

**Plant sales list.**

As the bulk of the collection is being raised from seed it is envisaged that there will be a limited number of surplus seedlings. These are now available for sale or swap at <http://www.mammillariaonepound.com>

**Some Photos:**





Mixed forms of *Mammillaria elongata* and *Mammillaria prolifera*  
 Photo: Copyright M.Masterson



Mixed forms of *Mammilloidya candida*

Photo: Copyright M.Masterson





Mixed forms of Mammillaria. Series: Supertextae

Photo: Copyright M.Masterson



Mixed forms of Mammillaria, Series: Mammillaria

Photo: Copyright M.Masterson





Seedlings

Photo: Copyright M.Masterson



Mixed Mammillarias

Photo: Copyright M.Masterson





Some larger plants in Series Mammillaria

Photo: Copyright M.Masterson

### **References/ Source of information.**

Cites Cactaceae Checklist, 2nd Edition (CCC2). ISBN 1-900347-54-8  
Royal Botanic Gardens, Kew. Dr David Hunt.

Cactaceae Systematics Initiatives (CSI). Dr David Hunt

The New Cactus Lexicon. Vol 1 and Vol 2, ISBN 0-953813-4-4-4  
Dr David Hunt/International Cactaceae Systematics Group

Journal of the British Cactus and Succulent Society. (BCSS)

Journal of the UK Mammillaria Society

Journal of the German Mammillaria Society

Cactus File Handbook Number 6, Mammillaria. ISBN 0-9528302-8-0  
John Pilbeam

Internet: <http://www.mammillaria.net>

### **DONATIONS**

We are always on the lookout to add documented plants to the collection. If anyone who is viewing this site would like to donate plants, whether seedlings, offsets or mature plants, they can contact myself at my E-Mail address: [mark.mccormac@btconnect.com](mailto:mark.mccormac@btconnect.com)

I am more than happy to cover postage costs and there is a small purchase fund for the more choice species. Any one who does donate plants will have their names placed on the plant donation list.

**Members** who have donated plants.

Roger Morton, UK  
Bob Stanley, UK  
Tony Irons, UK  
Wolter ten Hoeve, Holland  
Chris Davies, UK

**Seed Source.**

UK Mammillaria Society  
German Mammillaria Society  
Doug Rowland. UK  
Steven Brack. USA

**Commercial Plant Nurseries**

Bill Greenaway. UK  
Tony Irons seedlings.