

# Georgiana Molloy and early forest botany in the Augusta to Busselton area of Western Australia

S.J. Patrick

*Science Division, Department of Conservation and Land Management, Western Australia*

Peer reviewed contribution

Keywords: Molloy, Augusta, vegetation, Mangles, Drummond, Preiss, Lindley

**ABSTRACT:** The early history of the Augusta to Busselton area is examined, with reference to its vegetation and botany, from exploration by Nicholas Baudin in 1801, the settlement of Augusta in 1830 and the development of the Busselton region up to Georgiana Molloy's death in 1843. It emphasises the important role that she played in developing the botanical knowledge of the Augusta-Busselton area, a unique part of the southwest.

Georgiana Molloy arrived at Augusta in 1830 as one of the first settlers. Her early interest in the native flora developed in the forests around Augusta, which at that time were completely unknown to Europeans. An association with the naturalist and patron of botanical collecting, Capt. James Mangles, helped her to expand her botanical knowledge. She sent seeds and pressed plants to him in England and many new species were subsequently described from her specimens, most notably by Dr John Lindley, Professor of Botany at University College, London. Most of her specimens now reside in the herbaria at Cambridge University and the Royal Botanic Gardens, Kew, London. Her assistance to the German botanist Ludwig Preiss in 1839 and the botanical collector James Drummond in 1842 further increased knowledge of the region. Drummond tried to commemorate her work but much of her contribution remained largely unacknowledged until a biography was published by Dame Alexandra Hasluck in 1955.

## 1 INTRODUCTION

In the 1820s, the British Government began attempts to establish a settlement in Western Australia. The Swan River was proposed, and in 1827 Captain Stirling sailed from Sydney in the *Success* to survey the Swan River for a settlement site. The area was found to be suitable and public notices were issued in 1828, offering tracts of land to those who would settle in the district before the end of 1830. The *Parmelia* set sail on 6<sup>th</sup> February 1829 with the first group of colonists (Battye 1924).

Early exploration noted vegetation and types of timber to be found in particular areas of the Swan River Colony, including Geographe Bay. It would fall to two early settlers to provide the first detailed botanical information about the Busselton to Augusta area: James Drummond, who arrived as Government Naturalist on the *Parmelia* in May 1829, and Georgiana Molloy, a passenger on the *Warrior*, which arrived at the Swan River Colony in March 1830.

## 2 GEOLOGY AND VEGETATION OF THE BUSSELTON – AUGUSTA AREA

### 2.1 *Geology*

The area can be subdivided into four physiographic provinces.

The Blackwood Area, in the central part, comprises undulating hills of sedimentary rocks capped with laterite and associated quartz sand.

The Leeuwin-Naturaliste Ridge runs along the western coastline from Cape Leeuwin to Cape Naturaliste, rising to 220 m above sea level. Formed of granitic gneiss, it includes deposits of coastal limestone, sand dunes and beach ridges of calcareous sand. On the eastern side there are laterite deposits and quartz sand. Granite gneiss outcrops along the western coastline and east to Dunsborough. Other outcrops extend inland west of the Blackwood River and along the Margaret River where it cuts through the ridge. The easterly margin of the Leeuwin-Naturaliste Ridge province is drawn at the Dunsborough Fault, running south from Dunsborough to the Irwin Inlet.

The Swan Coastal Plain province in the north includes a crescent-shaped deposit of alluvium north of the Whicher Range scarp, extending west to the south of Dunsborough and east beyond Ludlow. North of the alluvium, limestones, sand dunes and beach ridges occur along the coast.

The Scott Coastal Plain in the south is an extensive area of late-middle Pleistocene dunes, active along the coast, but low-lying and swampy inland. It runs west into the area at the eastern edge of the Irwin Inlet and extends to the west of the lower reaches of the Blackwood River (Lowry 1967).

### 2.2 *Topography*

Much of the area is a low undulating plateau with the remains of earlier laterite capping, rising to 180 m in the northwest, sloping downward from east to west and from north to south. It is dissected by the Blackwood and Margaret Rivers, which flow westwards. The Carbanup River flows northward, whilst the Chapman and Upper Chapman brooks flow southward to join the Blackwood River, which turns south to enter the Irwin Inlet and Flinders Bay. On the west coast the steep sided Leeuwin Ridge rises to over 200 m in places and 220m at Cape Naturaliste, with the Margaret River and a series of brooks cutting through the ridge, draining the western side of the plateau, but with only the Turner Brook crossing the lower third.

On the northern coastal plain a series of rivers run north. They drain into estuaries and marshes behind the coastal dunes of Geographe Bay, forming the Wonnerup and Vasse Estuaries and Broadwater Lake, west of Busselton.

In the south the plateau falls to an extensive range of dunes edging the ocean. The coastal plain has areas of ironstone. The dunes prevent free drainage, giving rise to extensive swamps, drained by the Scott River, which runs west to the Blackwood River estuary (F.G. Smith 1973).

### 2.3 *Vegetation*

The area falls within the high rainfall zone, having 800-1400 mm annual rainfall, with forests and woodlands dominated by Jarrah, Marri and Karri. The high rainfall zone provided an area of habitat and climatic stability during the periods of erosional dynamism and recurrent climatic stresses that occurred further inland in the transitional rainfall zone during the late Tertiary and Quaternary. The forest zone therefore favoured persistence of a more conservative, relict flora, than the transitional zone (300-800 mm), where rapid speciation occurred (Hopper 1979).

In an account of vegetation in the region Smith considered that five systems of plant associations can be recognised (F.G. Smith 1973). The Chapman, Boranup and Scott River vegetation systems have the same boundaries as the soil systems of the same name (R. Smith 1951) as do the the Pinjarra Plain and Spearwood vegetation systems (McArthur and Bettenay 1960).

#### 2.3.1 *Pinjarra Plain*

Marri (*Corymbia calophylla*) open forest covered much of the northern coastal plain, now mostly cleared, with Jarrah (*Eucalyptus marginata*) on higher lateritic gravels. Forest blackbutt (*E. patens*)

grows with Marri near rivers, and River gum (*E. rudis*) with Paperbark (*Melaleuca raphiophylla*) along rivercourses and with Peppermint (*Agonis flexuosa*) closer to the coast.

Paperbark low woodland originally grew in swamps sometimes with Christmas tree, (*Nuytsia floribunda*) and Grass trees, (*Kingia australis*). Low open forest with *Banksia*, *Nuytsia* and *Melaleuca* species occurs on more sandy soils.

### 2.3.2 *Spearwood*

Coastal sand dunes and low limestone ridges are found between the northern coastal plain and the ocean. High forest of Tuart (*Eucalyptus gomphocephala*) grows on sandy soil over a low limestone ridge in the area of the Sabina River, with Peppermint understorey, the latter extending as low open forest with *Acacia cochlearis* and *A.littorea* along the coastal dunes from Busselton to Dunsborough. West of the Sabina River, Tuart gives way to Yate (*E. cornuta*) open forest.

### 2.3.3 *Chapman*

Jarrah open forest grows on gravelly hills of the lateritic plateau, with Marri forming closed forest in valleys and on richer, sandy soils, particularly along the Blackwood River and on grey earths of broader valleys on the western plateau. Deep valleys near Margaret River support small areas of high open forest, with Jarrah, Marri and sometimes Karri (*Eucalyptus diversicolor*).

Sedgelands occur on swamps of the higher plateau and broad valleys of the upper Margaret River. On high areas of clayey loam Jarrah open woodland, or high open shrubland with Grass trees occurs. At the northern edge of the plateau, Mountain marri (*Corymbia haematoxylon*) occurs in Jarrah woodland, or may replace it, forming low woodland with *Banksia* species.

### 2.3.4 *Boranup*

The Leeuwin-Naturaliste Ridge has complex vegetation systems, on granitic rocks, limestone and sand, varying in exposure and slope. On exposed western slopes, open heath gives way to open scrub in some areas. With less exposure low open forest of Jarrah, *Banksia* and Peppermint develops and with further protection Jarrah forms open forest. Karri high open forest grows in the lee of the high ground and in hollows at the foot of the ridge. In the north, in the shelter of the Naturaliste Downs in richer soils, open forest of Yate grows with Marri, River gum and Peppermint.

This system extends along dunes on the shores of Flinders Bay. Open heath and scrub grows on dunes on the seaward side, Peppermint forms low open forest and woodland further inland where Jarrah forms open forest. Tall shrubland with *Banksias*, Peppermint and Parrot bush (*Dryandra sesilis*) occurs in some places.

### 2.3.5 *Scott River*

South of the of the Chapman System the lower land has acid peaty sand with low open woodland of Paperbarks, Jarrah and *Banksias*, with an understorey of low shrubs and sedges. Wetter areas have sedgeland. Jarrah low open forest grows on small lateritic hills, and sand ridges allow development of *Banksia* low woodland. Along the Scott River, Karri open forest and Jarrah-Marri open forest occurs in some places, here and to the north of the river low shrublands grow on ironstone.

## 3 HISTORY OF THE AUGUSTA-BUSSELTON AREA

### 3.1 *Early exploration*

In the south of the area, Cape Leeuwin was discovered in 1622 by the Dutch vessel *Leeuwin*, (*Lioness*). However it was not explored until the first settlers arrived in 1830 to establish Augusta.

The first exploration of Geographe Bay and Cape Naturaliste was undertaken by a French expedition under the command of Nicholas Baudin from 1801-1804, with Leschenault as botanist. The *Geographe* and the *Naturaliste* were the ships which carried the expedition, reaching the shores of New Holland on 27<sup>th</sup> May 1801. Three days later they anchored at a place they named Geographe Bay. Plants collected from the Meelup area on this expedition were sent to Paris and Florence.

*Acacia hispidissima* DC. (now known as *A. pulchella* var. *glaberrima*) was named from the specimens collected at the time (Maslin 2001).

Charles Fraser, Colonial Botanist in New South Wales who accompanied Captain Stirling to the Swan River in 1827 provided an account of the general botany from Swan River to Cape Naturaliste that was published in 1830.

Proceeding from the mouth of the river [probably The Vasse] along Baie Geographe [Geographe Bay], the appearance of the country is particularly pleasing. The shore seems well clothed with timber, and the foliage is of the richest green. The observations taken here confirm me in my opinion that the principal part of the timber consists of *Eucalyptus*. I saw no traces of *Banksia* nor of *Casuarina*.

From the shore the country is seen to rise gradually into gentle undulating hills, separated, apparently by valleys of considerable size; the whole terminated by a magnificent range of hills, thickly covered with heavy timber extending all along the bay.

At the head of the bay [Cape Naturaliste] the feature of the country changes: exhibiting bold hills, with large masses of granite, in many instances jutting into the sea with considerable grandeur. The hills, too, are clear of timber, with the exception of some stunted *Eucalyptus*, and are divided by beautiful winding valleys, in each of which is a small stream and a soil of the richest loam, throwing up immense quantities of herbacious plants, amongst which I observed thistles of eleven feet in height (Hooker 1830).

Dr. Collie and Lieut. R.N. Preston explored the coast from Cockburn Sound to Geographe Bay from 17th to 30th November 1829. They travelled south to Port Vasse [Busselton], exploring rivers and harbours, noting topography and vegetation, but continued no further west along Geographe Bay, which had been surveyed earlier. At Port Vasse they went in through the river channel:

The land adjoining, and to the distance of some hundred yards, is an uneven plain, composed of raised and low places, the former being a tolerable mixture of sand and mould, producing some herbs, shrubs, chiefly leguminous, and trees, for the most part septospermi; the latter is covered with rushes and swampy ... Inland ... a similar, but little more elevated surface, ... lately flooded, producing grass and other herbs, without any trees or shrubs, for many acres (Cross 1833).

## 4 BOTANICAL EXPLORATION

### 4.1 Early botanical exploration

A Government Notice relative to Port Augusta was issued by the Surveyor General's Office, Perth, on 11<sup>th</sup> May 1830. It described exploration after the brig, the *Emily Taylor*, anchored in Flinders Bay near the mouth of the Hardy Inlet on 2<sup>nd</sup> May. The Lieutenant Governor with several other gentlemen examined the coast and explored the shores of the inlet. Whilst the settlers began to disembark, the Blackwood River was explored, and the downs (Leeuwin Ridge) to the north west of the inlet were visited. The *Emily Taylor* then left the anchorage, examined the coast of Flinders Bay as far as Black Point and returned to Gage's Roads.

It was noted from this exploration that the position for the new town had excellent soil and good water. The banks of the river were covered in good timber of the Stringy bark [probably Jarrah] and Red gum (Marri) kinds but the soil was a light sandy loam, which is seldom strong enough for cultivation. The best soil, the finest Blue gum (Karri) timber, and some good grass, were to be found on the hilly lands.

Later, John Bussell, one of the first settlers, on an expedition from the Blackwood River to the Vasse in 1831 recounts that they left the Blackwood River at the rapids. This appears to be half way between Augusta and Port Vasse. They transversed country thickly wooded with Mahogany (Jarrah) then later Mahogany and Oak [probably *Allocasuarina* species] and later Swamp oak

[probably *Casuarina obesa*]. At the Vasse he noted that Red gum, White gum [probably Tuart] and Peppermint (*Agonis flexuosa*) were the larger sort of timber, with also a small tree, the Black wattle [probably *Acacia saligna*]. (Cross 1833.)

Three botanists provided the first detailed botanical information about the Busselton to Augusta area. They were James Drummond, Government Naturalist who arrived on the *Parmelia* in May 1829, Ludwig Preiss who visited the Swan River Colony between 1838 and 1842 and Georgiana Molloy, one of the first settlers at Augusta in 1830.

#### 4.2 James Drummond

James Drummond sailed to the Swan River Colony on the *Parmelia* with his family in 1829, as Government naturalist and botanist. Apart from the first year of settlement, Drummond did not receive a salary, so supported his family by payments for plant collections that he made on botanical collecting expeditions. He worked throughout the southwest and north to the Victoria Plains, Moora and Wongan Districts. Between 1837 and 1852 he sent six large collections to England, often in sets of 14 with 100 to 1000 species in each set. His last collecting journey was in 1851. He died in 1863 in his eightieth year and was buried at "Hawthornden", his property at Toodyay (Erickson 1969).

In the winter of 1842 Drummond journeyed to the Vasse, primarily to find a plant that he thought would be a new species of *Dasypogon* (*D. hookeri*), reported to him by Governor Hutt, who had recently spent time in the region. Georgiana Molloy was an old acquaintance, so he stayed at her house "Fair Lawn" before continuing, but returned there in two weeks. In October 1842 he travelled south again, with the ornithologist Gilbert. They left specimens at Fair Lawn and travelled south to Augusta where they stayed for a few days before returning, after an unsuccessful attempt to travel east to Albany. By this time Georgiana was dangerously ill after the birth of her fifth daughter. His letter to Hooker published by the *Inquirer* 15<sup>th</sup> February 1843 describes the vegetation on this journey:

In about 6 miles we entered the country of the magnificent *Dasypogon* and the Arboreus Lambertia... the road from the Vasse to Augusta is a mere footpath made by the soldiers, ... it crosses many swampy valleys with streams of water: ... The banks of several of these swampy brooks produce one of the most beautiful plants I have ever seen in any country. It belongs to the natural order Rutaceae and the genus *Boronia*...

About three miles to the north of Augusta we passed a grove of remarkable *Eucalyptus*, which from the size of the leaves I have named *Eucalyptus macrophyllus* [probably Karri]. The leaves are thinner and smoother than the Red gum, the bark is also different, the flowers and seed vessels I have not seen. Augusta is beautifully situated at the mouth of the Blackwood, the largest river yet discovered in Western Australia...

The soil is heavily timbered and expensive to clear, but when cleared it is very productive. Much has been said from time to time about exporting our indigeous timber and the extensive genus *Eucalyptus* does not include a more valuable species than the Augusta Gum, which differs from our White Gum in the browner colour of the bark and the light rose colour and tougher nature of the wood.

We found Mr Turner busily employed in burning this timber but although the trees had been cut down for some time the process was very slow, many of the trees are 60 feet long without a branch and from 6-8 ft in diameter. [Turner said that it took "half a dozen men two or three days to cut them down and dig up the roots, and as much time to cut them up" (Hasluck 1955).]

A beautiful *Kennedya* with large round bifoliate leaves and dark red flowers [probably *Kennedia macrophylla*] and a climbing leguminous plant with long narrow leaves of a genus which I have not observed before, also an elegant *Pronoya*, perhaps the *Speciosa* of Baron Hugel's enumeration of Swan River plants and a fine *Sysyrinchium* which grows four feet high with long spikes of blue flowers and grass like leaves, are some of the more remarkable plants

to be seen between Mr. Turner's residence and Cape Leeuwin. The woods about Augusta produce large quantities of a *Pimelea* known here by the name of Drummond-flax, from the abundance and tough nature of the fibre when compared with other flax or hemp, it is well deserving of enquiry, the plant may be procured in considerable quantity without the trouble of cultivation. The natives in the vicinity of Augusta use the roots of the *Anigozanthos flavida* which they call Cathah, as food, they select for that purpose the tubers of such plants as are prepared to flower the following season, in that state they contain a large portion of starch.

#### 4.3 *Ludwig Preiss*

The German botanist and naturalist, J.A.L. Preiss, visited Western Australia from the end of 1838 to 1842. Many of the specimens that he collected formed the basis of the botanical publication *Plantae Preissianae* (Lehmann 1844-1848).

In November 1841 Georgiana Molloy heard of his visit from Governor Hutt and wrote inviting him to "Fair Lawn". He came at once and stayed for about a month. She hoped that he would collect plants of the area and aid her in providing information about them. He collected many, giving her some, and intended to return in the spring, promising on his departure that he would send her information. However, she was disappointed in his lack of communication: he did not write to her and left the Swan River Colony on 8<sup>th</sup> January 1842, taking with him a collection of 2,700 plant specimens (Hasluck 1955).

#### 4.4 *Georgiana Molloy*

Georgiana Molloy was born in Cumberland, near the Scottish border. She married Captain John Molloy on August 6, 1829, when she was aged 24. They arrived at the Swan River Colony on 12<sup>th</sup> March, 1830. By then all of the good land around the Swan River was allocated, so the Molloyes, Bussells and other settlers sailed on the *Emily Taylor* to the south to pioneer at Augusta, at the mouth of the Blackwood River. They arrived at Flinders Bay on 2<sup>nd</sup> May, and began to build accommodation, and clear part of the heavy karri forest for cultivation.

The Molloyes built their house at the corner of Albany Terrace and Turner Street at a site overlooking the Hardy Inlet, which is now Georgiana Park.

Georgiana's first child was born in a tent on 24<sup>th</sup> May, but died soon after. When their house was erected near the water's edge, she turned to homemaking to take her mind off her loss, managing to establish a small flower garden with seeds she had brought from England. In November 1831 her second child, Sabina, was born.

##### 4.4.1 *First botanical impressions of the forest of that time.*

Her first impressions of the natural vegetation were not entirely favourable, no doubt coloured by the loneliness and the primitive surroundings in which she found herself. Her interest in plants at that stage was as a gardener and she looked at the native plants for attributes that would make them potential horticultural subjects, though, by the following spring, she began to notice the small, brightly coloured flowers which appeared in the bush.

She wrote to her sister from Augusta on 7<sup>th</sup> November 1832,

This is certainly a very beautiful place, but were it not for domestic charms, the eye of the emigrant would soon weary of the unbounded limits of thickly clothed, dark green forests where nothing can be descried to feast the imagination ... The native flowers are all exceedingly small, but beautiful in colour ... I only know of three kinds, and those are two white and one blue of the herbaceous plants possessing any odour. Many of the shrubs are powerfully sweet, some like May, some like Bergamot. Another remarkable feature in the botany of this country, S.W. Australia, is the numerous kinds of leaves with the identical flower, some of the leguminous ones now I know; one purple pea flower with three different kinds of leaves, one of which is a creeper, and called the Blue vine [probably *Hardenbergia comptoniana*]; the other an erect shrub with no smell and leaves like a Holly [probably *Hovea chorizemifolia*]; the third is also

erect, with leaves like the Privet [probably *Hovea trisperma*], and in shady places the blossom emits a scent about three in the afternoon like allspice or cloves. Another sort is yellow and straw colour, of which there are five sorts of flowers with leaves utterly distinct.” (Pickering 1929)

Early in 1832, the settlers began to look elsewhere for land less remote and easier to clear. Captain Molloy claimed fertile and open land in the Vasse region, around what is now Busselton, although the Molloyes did not relocate there until May 1839. She wrote from Augusta to Miss Margaret Dunlop on 12<sup>th</sup> January 1833, “Molloy again went last Monday to view his large grant of land on the Vasse - a most pleasing country and answering with truth to the description given of its park-like appearance, with long waving grass, and abounding also in kangaroos.”

Later, her letters to Capt. Mangles gave more impressions of the vegetation at Augusta, still comparing them unfavourably with European plants. She wrote to him from Augusta on 25<sup>th</sup> January 1838:

We have but very few flowers until spring, September and October, all our most delightful months. The purple creeper (*Hardenbergia*) begins to bloom in July, the red (*Kennedia*) in August. In these two months the wilderness indeed begins to blossom like the rose. The stiff and inelegant grass plant even is decked in borrowed colours, from the purple red creeper and white clematis (or *Kennedya*, I believe). Where the bush has receded and left an even surface of grass and weeds, appears the “enamel carpet” of which we read. I am of the opinion that these flowers are not so interesting as our own, and, after the novelty is passed, soon cease to please. These possess no associations, nor does anything about them attract but the lustrous colour. Very few have any scent, and I quarrel much with their excessively minute corolla in this; they constantly remind me of the *Laurestinus*. I do not know the name of any one of them, for dear Augusta is quite out of the world and even the limited society of S.W. Australia, and very few bestow a thought on flowers...

My two remaining children have been much gratified in the undertaking (seed collecting), and have really been of great utility, as their eyes being so much nearer the ground, they have been able to detect many minute specimens and seeds I could not observe, for in our impervious Bush it is really difficult to find out what you are in quest of; the numberless specimens of flowers of the same colour with different leaves as you will perceive in the *Hortus Siccus*, and again, some as trees, others herbaceous plants, with a similar blossom.

I long to see again a large flower: we do not possess one ... I am anxious for blue flowers, and those possessing odour (Pickering 1929).

#### 4.4.2 *The development of her botanical knowledge at Augusta.*

During the nine years of their stay in Augusta, Georgiana developed her knowledge of the native flora. At first, this was on her own observations but in 1836, she received a request from Captain James Mangles RN. He asked her to collect native seeds and specimens on his behalf in exchange for others that she might want. He was a naturalist and patron of botanical collecting, who had visited the Swan River Colony 1831. He had heard of her from his cousin, the wife of Governor Stirling. Despite having a young family to care for and educate, she began work on this challenging task.

Georgiana Molloy’s correspondence with Mangles continued for five years, and her knowledge of botany grew as he sent her botanical books, magazines and illustrated catalogues. He also sent seeds for her garden, collecting materials and other equipment.

At first she felt that her lack of knowledge would hinder her task. She wrote to him from Augusta on 21<sup>st</sup> March 1837,

In truth, my dear Sir, I much fear you have bestowed your liberality on one whose chief pleasure is her garden, but who does not enter the lists as a florist, much less a botanist ... I am not

even acquainted with the names of the native plants. I will, however, enclose a leaf and description of the flower in each paper. (Pickering 1929)

After finding flowering plants, she would note and number the locations and revisit them several times until the seeds were ready to collect. Previously, she had explored little in the bush and she began to enjoy these expeditions.

After her son tragically drowned in their well, this work helped to distract her. The first box was ready to send in January 1838, but was delayed until November.

Through her methodical collection techniques she was able to gain knowledge of the flora through Mangles. She wrote to him from Augusta on 25<sup>th</sup> January 1838:

My first request is that you will send me the names of the flowers according to their numbers. I have kept the numbers of each and a duplicate of most of the specimens that I might have the satisfaction of hearing some name attached to them; and as thru your medium I believe I shall be enlightened from the highest sources, I shall esteem your compliance a great favour ... Allow me to state that, fond as I ever have been of Gardening, I have always avoided the tedious operation of gathering seeds, therefore inexperience must apologise for their not being as cleanly and neatly executed as I could desire. Another reason was my not knowing the time they ripened, and on searching I found some shed, others green, and perhaps before I returned for them a native fire or a hot day had accelerated their ripening and I found the seed scattered (Pickering 1929).

#### 4.4.3 *Her importance to botany.*

Georgiana's first consignment to Mangles of two boxes contained two bound volumes of pressed plants and packages of seeds. Ready to send in January 1838, it was finally sent in November 1838 and arrived on the *Joshua Carroll* early in 1839. Practically all the pressed plants were new to him (Hasluck 1955).

After moving to the Vasse in May 1839 she wrote to Mangles on 31<sup>st</sup> January 1840 with a list of 106 species collected between December 1839 and January 1840. These were all identified to genus and species except 39, which were labelled "sp. nova" and three were completely unknown.

In a letter written to Mangles between 20<sup>th</sup> January and June 1841 she included a list of 100 species of seeds, which he received in January 1842. Her final letter to him was written on 11<sup>th</sup> April 1842, which she sent with seeds of *Nuytsia floribunda*. She was unable to go out collecting again. Her last child was born in early December of that year and she died on 8<sup>th</sup> April 1843, aged 37.

Her work was valuable in a number of ways. She was the first to collect native plants of the area and many of her collections were used to describe those species by Lindley. Her collections of seeds were valuable to the progress of horticulture. She took great trouble to collect seed that was not damaged by insects, packing them in pepper to prevent insect predation on the journey to England. All the growers to whom Mangles distributed the seed commented on how fresh and viable they were. Finally, her excellent descriptions of many species in her letters to Mangles provided word pictures of these unknown plants to botanists and horticulturalists of the time.

George Bentham included Mrs Molloy as a collector of twenty five species in *Flora Australiensis* (Bentham 1863-1878). She must have collected far more than this number, but his work was published some time after her death, when the collections of other botanists were available. Most had collected more extensively and had visited the same areas where she had worked, though at later times. These include not only James Drummond, and Ludwig Preiss, but also others such as Oldfield, Gilbert, Gregory and Walcott. Her collections are cited only from Vasse River and are listed only if no other collections of that species had been made from there.

John Lindley described some species from specimens collected by Georgiana Molloy. Nine of her specimens are in the Lindley Collection of Australian Plants at Cambridge University (Burbidge 1960). Many more species were probably described by Lindley from her collections in 'Sketch of the Vegetation of the Swan River Colony' but were not attributed to her (Lindley 1839).

Photographs of fifteen of her collections, which have type status, are held at the Western Australian Herbarium. The specimens reside in the Kew Herbarium or the University of Cambridge Herbarium. A composite list made up from these sources has thirty seven taxa (Table 1).

Table 1. Composite list of Molloy's Collections

Current name	Earlier name	Source	Notes
<i>Acacia applanata</i> Maslin	<i>Acacia diptera</i> Lindl.	WA Herbarium	Paralectotype
<i>Acacia biflora</i> R.Br		Bentham	-
<i>Acacia divergens</i> Benth.		WA Herbarium, Bentham	Holotype
<i>Acacia drummondii</i> Lindl. subsp. <i>drummondii</i>		WA Herbarium, Bentham, Lindley Collection	Isoparalectotype
<i>Acacia extensa</i> Lindl.		Bentham	Isosyntyte
<i>Acacia incurva</i> Benth.		WA Herbarium, Bentham	Isotype
<i>Acacia stenoptera</i> Benth	<i>Acacia decipiens</i> R.Br.	WA Herbarium, Bentham	Syntyte
<i>Acacia littorea</i> Maslin	<i>Acacia diptera</i> Lindl.	Bentham	-
<i>Acacia willdenowiana</i> H.L.Wendl.		Bentham	Syntyte
<i>Adenanthos barbiger</i> Lindl.		WA Herbarium, Lindley Collection	Paralectotype
<i>Amphipogon laguroides</i> R.Br.	<i>Amphipogon cygnorum</i> Nees	Bentham	-
<i>Andersonia aristata</i> Lindl.		Lindley Collection	-
<i>Astroloma drummondii</i> Sond.		Bentham	-
<i>Boronia dichotoma</i> Lindl.	<i>Boronia spathulata</i> Lindl. var. <i>elatior</i>	Bentham, Lindley Collection	Holotype
<i>Bossiaea linophylla</i> R.Br.		Bentham	-
<i>Burchardia multiflora</i> Lindl.		WA Herbarium	Syntyte
<i>Caladenia hirta</i> Lindl. subsp. <i>hirta</i>		WA Herbarium	Lectotype
<i>Calandrinia liniflora</i> Fenzl	<i>Calandrinia liniflora</i> Fenzl var.(?) <i>grandiflora</i>	Bentham	Holotype
<i>Dampiera lavandulacea</i> Lindl.		Lindley Collection	-
<i>Diuris corymbosa</i> Lindl.		WA Herbarium	Paralectotype
<i>Drosera bulbosa</i> Hook.	<i>Drosera rosulata</i> Lehm.	Bentham	-
<i>Drosera macrantha</i> Endl.		Bentham	-
<i>Drosera pallida</i> Lindl.		WA Herbarium	Paralectotype
<i>Gastrolobium capitatum</i> (Benth.) G. Chandler & Crisp	<i>Oxylobium capitatum</i> Benth.	Bentham	-
<i>Gastrolobium praemorsum</i> G.Chandler & Crisp	<i>Brachysema praemorsum</i> Meisn.	Bentham	-
<i>Glischrocaryon aureum</i> (Lindl.) Orchard	<i>Loudonia aurea</i> Lindl.	Lindley Collection	Lectotype
<i>Isotropis ?cuneifolia</i> ( Sm.) Heynh.	<i>Isotropis striata</i> Benth.	Bentham	Syntyte
<i>Lawrencella rosea</i> Lindl.		WA Herbarium	Holotype
<i>Leucopogon elatior</i> Sond.		Bentham	Syntyte

<i>Patersonia occidentalis</i> R. Br.	<i>Patersonia sapphirina</i> Lindl.	Lindley Collection	-
<i>Persoonia longifolia</i> R.Br.		Bentham	-
<i>Persoonia saccata</i> R.Br.	<i>Persoonia macrostachya</i> Lindl.	WA Herbarium	Syntype
<i>Ptilotus sericostachyus</i> (Nees)F.Muell. subsp. <i>roseus</i> (Moq.)Benl.	<i>Trichinium roseum</i> Moq.	Bentham	-
<i>Schoenolaena juncea</i> Bunge		Bentham	-
<i>Tribonanthes australis</i> Endl.	<i>Tribonanthes variabilis</i> Lindl.	WA Herbarium, Bentham	Lectotype
<i>Tribonanthes longipetala</i> Lindl.	<i>Tribonanthes uniflora</i> Lindl.	WA Herbarium, Bentham	Paralectotype
<i>Tribonanthes violacea</i> Endl.		WA Herbarium	Paralectotype
<i>Verticordia pennigera</i> Endl.	<i>Verticordia setigera</i> Lindl.	Lindley Collection	Syntype

Despite all the knowledge that she sent to Mangles, Georgiana was not very well recognised for her work. In 1857, Meissner published *Molloya cynanchicarpa*, in her honour, although not based on one of her collections, occurring north of Perth. In 1870, Bentham considered that the plant was a *Grevillea*, and eliminated the name *Molloya*. It is now known as *Strangea cynanchocarpa*.

In 1843, Hooker published a letter from James Drummond in which he described a *Boronia* “as tall as the shoulder of a man riding on a horse”, which he named *Boronia molloyi*. However, Drummond’s description was overlooked and his name. Instead, this species was described in 1844, by Bartling, as *Boronia elatior*. It was not until about 130 years later that the earlier name was accepted as having priority, with the spelling changed to *ae*, since the name commemorated a woman, not a man. The name *Boronia molloyae* now recognises her great contribution to the early knowledge of botany in the southwest of Western Australia (Wilson 1998). Her biography, published by Alexandra Hasluck in 1955, followed by that of Lines in 1994, brought to notice the full story of this remarkable woman and botanist (Hasluck 1955, Lines 1994).

## 5 CONCLUSION

Georgiana Molloy made a significant contribution to early forest botany. Many species were named from her plant collections, her seed collections enabled many Western Australian plants to be grown by horticulturalists in England, and she provided excellent descriptions of them, bringing knowledge of the Western Australian flora to the fore. Moreover, she aided Drummond and Preiss in making extensive collections from her area of residence.

Her contribution was acknowledged by many of her contemporaries, the collector James Drummond, the taxonomist John Lindley, and horticulturalists such as George Hailes, and Sir Joseph Paxton. James Mangles aided her in acquiring an extensive knowledge of the flora.

## ACKNOWLEDGEMENTS

Bruce Maslin provided useful comments on the manuscript. Paul Wilson gave advice on the status of type specimens.

## REFERENCES

- Battye, J.S. 1924. *Western Australia. A History from its Discovery to the Inauguration of the Commonwealth*. Facsimile Edition 1978, Perth: University of Western Australia Press.
- Bentham, G. 1863-1878. *Flora Australiensis*, Vols. 1-7. Lovell Reeve & Co., London.
- Burbidge, N.T. 1960. *Lindley collection of Australian plants*. Index to the Lindley collection on microfilm. Botanical Library, W.A. Herbarium. Dept. of Conservation and Land Management.
- Cross, J. 1833. *Journals Of Several Expeditions Made In Western Australia During The Years 1829, 1830, 1831, and 1832; Under The Sanction Of The Governor, Sir James Stirling, Containing The Latest Authentic Information Relative To That Country, Accompanied By A Map*. J. Cross, London.
- Erickson, R. 1969. *The Drummonds of Hawthornden*. Perth: Lamb Paterson Pty Ltd.
- Hasluck, A. 1955. *Portrait With Background*. Melbourne: Oxford University Press.
- Hooker, W.J. 1830. *Botanical Miscellany*. 1: 221-236. London.
- Hopper, S.D. 1979. *Biogeographical Aspects of Speciation in the Southwest Australian Flora*. *Ann. Rev. Ecol. Syst.* 10: 399-422.
- Lehmann, J.G.C. (ed.) 1844-1848. *Plantae Preissianae*. Hamburg: Germany.
- Lindley, J. 1839. *Appendix To The First Twenty Three Volumes Of Edwards's Botanical Register: Consisting Of A Complete Alphabetical And Systematical Index Of Names, Synonyms And Matter... Together With A Sketch Of The Vegetation Of The Swan River Colony*. James Ridgeway, London.
- Lines, W.J. 1994. *An All Consuming Passion: Origins, Modernity, and The Australian Life Of Georgiana Molloy*. St Leonards, NSW: Allen & Unwin.
- Lowry, D.C. 1967. Busselton and Augusta, Western Australia: 1:250 000 Geological Series, Explanatory Notes. Geological Survey of Western Australia, Perth.
- Maslin, B.R. 2001. Acacia. In: Orchard, A.R & Wilson, A.J.G. (ed.), *Flora of Australia* Vol. 11A Mimosaceae, Acacia Part 1. Canberra: Australian Government Publishing Service, pp. 418-419.
- McArthur, W.M. & Bettenay, E. 1960. *The Development and Distribution of the Soils of the Swan Coastal Plain*, Western Australia. Soil Publication No. 16. C.S.I.R.O. Melbourne.
- Pickering, W.G. 1929. The Letters of Georgina Molloy. *Journal and Proceedings of the Western Australian Historical Society* 6, 4: 30-84.
- Smith, F.G. 1973. Vegetation Map of Busselton and Augusta. Western Australian Department of Agriculture.
- Smith, R. 1951. Soils of the Margaret River- Lower Blackwood River Districts. Bull. 262, C.S.I.R.O.
- Wilson, P.G. 1998. New names and new taxa in the genus *Boronia* (Rutaceae) from Western Australia, with notes on seed characters. *Nuytsia* 12, 1:140.