

15: St Helena



Introduction

St Helena is a tropical island situated in the South Atlantic Ocean. It lies some 1,960 km from the nearest point on the south-west coast of Africa and 2,900 km east of South America. The island is volcanic, representing the deeply eroded summit of a composite volcano. It is approximately 16 km long and 10 km at its widest point. A high central ridge dominates the topography, and the highest point, Diana's Peak, lies on this ridge rising to 823 m above sea level. The land area of St Helena is 122 km². St Helena has two other Overseas Territories as dependencies: Ascension and Tristan da Cunha. St Helena, Ascension and Tristan da Cunha together form a single group of associated territories referred to as St Helena and its Dependencies.

The population of St Helena was 4,913 in 1998. Agriculture, livestock rearing and fishing are the island's main economic activities. The island is principally maintained by financial aid from the UK. Tourism is limited due to the isolation of St Helena.

The few visitors to the island include passengers from RMS St Helena. In addition, several cruise ships each year bring a few hundred visitors and between 100 and 150 yachts call at St Helena annually.

In 1993 a three-volume report on the sustainable environment and development strategy (SEDS) for St Helena was published (Royal Botanic Gardens Kew 1993). This study, commissioned by the UK Government at the request of the St Helena Government, represents one of the world's first programmes to begin integrating environmental and conservation issues under the goals of sustainable development. The SEDS strategy is supported by an integrated series of action plans and programmes. Information on St Helena's environment, compiled as part of the study and published in volume 2 of the report, forms the basis for this biodiversity profile. In December 1997 an Advisory Committee on the Environment was formed with responsibility for the full development of SEDS on the Island.

International obligations relevant to nature conservation

- Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)
- Convention on Biological Diversity (CBD)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- International Convention on the Regulation of Whaling

Implementation

World Heritage Convention: in 1987 a proposal was put forward to inscribe the 11 ha of Diana's Peak and High Peak (St Helena) on the World Heritage list, but it failed to meet the criteria and was rejected on technicalities; the area was considered too small and the local protection status uncertain.

CITES: Regulations are in place under Customs legislation to enforce CITES requirements.

St Helena has also been proposed under the UNESCO Man and the Biosphere Programme for inscription as a biosphere reserve (Drucker *et al.* 1991).

Protected areas

- **The Forestry (Amendment) Ordinance 1985 (Forestry Ordinance No. 9, amended No. 2, 1985):** is the current legislation for protected areas together with Statutory Rules and Orders

No. 15, amended in No. 15 of 1978, and Legal Notice No. 3, 1981. New legislation for protected areas is expected in 2000 (Francis *in litt.*). The Forestry Ordinance 1985 empowered the Forestry Advisory Committee and subsequently its successor, the Agricultural and Natural Resources Committee, to declare three categories of protected area as follows:

- National forest: defined as any designated area of Crown land. Under Section 17(1), except with the written permission of the forestry officer, no person shall in any national forest:
 - cut, dig, burn or carry away any soil;
 - cut, gather, burn or carry away any forest produce;
 - permit any stock to enter or remain therein;
 - bring or make any fire therein.
- Dedicated forest: any area of privately owned land under the control of the forestry officer. Under Section 17(1), i–iv above also apply.
- Protected private forest: under Section 17(1), i–iv above also apply

Under the 1985 amendment in Section 15A(3) a report by the Agricultural and Forestry Officer on the environmental consequences of the loss of such forest must be made in the event of attempts to revoke or alter land in one of the three categories.

The first site, Diana's National Forest, was constituted under Section 8(1) (a) of the Forestry Ordinance No. 9 of 1954, No. 25 of 1955 and No. 6 of 1957. It is mixed St Helena Government property and Crown land. Diana's Peak National Park currently covers an area of 81 ha.

In 1990 protected areas were zoned into 1,000 ha of total productive forest for timber and fuel, and 200 ha as conservation forest areas. Conservation areas included areas of well-established natural woodland and areas of 'productive' woodland, established and maintained to prevent erosion and soil degradation. The sizes of individually gazetted forest sites are: Diana's

Peak Forest Reserve (1.3 ha), Hardings and Casons Forest Reserve (24.6 ha), High Peak Forest Reserve (4.9 ha) and Horse Ridge Nature Reserve (7.1 ha). At present, as little as 6% of St Helena is protected as forest (Wilson & Lomas 1991). Under the Endangered Plants Propagation Programme (see Biodiversity assesment section below) areas of endemic vegetation are designated as endemic forest reserves to distinguish them from areas of new planting of endemic trees and production forest

The Crown Wastes are Crown property and are therefore protected from private development, and are covered by an Ordinance against grazing animals of all kinds.

There are many areas that harbour examples of the unique and threatened flora, fauna, habitats, geology and heritage of the island. Most of these are protected under the existing Forestry Ordinance and are currently being reviewed as part of the National System Plan of Protected Areas. Despite the significant importance of the biological wealth in St Helena, the island has so far failed in its attempts to receive international recognition for this through inclusion on the World Heritage List.

A National System Plan of Protected Areas is currently being developed according to IUCN guidelines. However the completion of the Protected Area Plan, and consequent changes in protected area legislation, is not timetabled until 2000. The Strategic Land Use Plan for St Helena is currently being revised. Following the publication and final approval of the revised Strategic Land Use Plan, it will be known as the Land Use and Development Control Plan; together with the Land Planning and Development Control Ordinance 1998, it will guide future land-use development on the island. All protected areas, including the built environment identified in the National Plan System, will be included in the Land Development Control Plan.

There is a 200 mile exclusive fishing zone (EFZ) around St Helena.

Habitats of major significance

The habitat types of St Helena are discussed by Cronk (1989). There are at least 27 main terrestrial habitat types of which only about five are dominated by endemic or indigenous species. Most of the original vegetation of St Helena has been destroyed. Over 60% of the island is now covered by eroded areas of rock or scrub of prickly pear, aloe and other exotic species. Semi-natural forest covers less than 1% of the country in isolated remnants of the central mountain ridge. These remnants are of immense botanical, zoological and biogeographical interest, consisting of St Helena's endemic plants in their natural associations (Cronk 1990; Drucker *et al.* 1991; Royal Botanic Garden Kew 1993).

Current vegetation types have been identified as follows: tree-fern thicket; pasture, flax plantation, woodland and cultivations of mid-altitude areas partly covered by *Chrysanthemoides* (Asteraceae) – *Diospyros* (Ebenaceae) scrub, gumwood *Commidendrum robustum*, and pasture; cactus *Opuntia* scrub; *Lantana* (Verbenaceae) scrub dominated by invasive *Lantana sp.*; 'creeper' waste areas covered by mats of carpetweed *Carpobrotus sp.*; and semi-desert, which has very little vegetation but forms the eroding, barren Crown Wastes which were formerly covered with scrubwood *Commidendrum rugosum* (Cronk 1986c). Semi-desert areas have regenerating populations of the indigenous *Suaeda fruticosa* and endemic annuals St Helena salad plant *Hypertelis acida*, bone-seed *Ostespermum sancatae-helena* and babies' toes *Hydrodea cryptantha*.

Small mountain streams are the only inland waters found on St Helena. Patches of seasonal swamp, associated with the water courses, are scattered throughout the island's wet, central peak district, and also in some of the larger valleys of the arid peripheral areas.

Little is known about the coastal and marine habitats or ecosystems of St Helena; even the dominant communities are not fully known. The coastal and marine zone is broadly divided into four

sub-divisions: the deep ocean with an average depth of 4,000 m; sea-mounts; the inshore water on the narrow and shallow island shelf; and the coastline itself dropping to the low-water mark. The island shelf has three major types of habitat. Close inshore at the bases of cliffs, there is rock with a coating of seaweed and molluscs, usually dropping off steeply and often pitted with crevices and caves. The rocky drop-offs end either in fairly flat, sandy areas or areas of rubble and algal cobbles. The steep rock faces and numerous caves harbour schools of fish, corals, sea-fans, spiny lobster and occasional moray eels. In general there is much greater biomass in the marine zone than on land with greatest concentrations in the inshore waters (Royal Botanic Gardens Kew 1993).

Species of major significance

Biodiversity assessment

There is a continuous chronology of globally important scientific research, from Holly in 1676 to the earliest recorded plant species conservation measures in 1718 and some of the first global environmental concerns in 1722, to the work of Joseph Banks, Buchell, and Hooker in the 19th century. Darwin undertook work on the island in 1832–1836 and research has been undertaken subsequently, including seven major expeditions since the 1960s and the recent SEDS assessment.

Examples of recent work include the combined activities in plant conservation of the WWF-UK, Royal Botanical Gardens, Kew and the Agriculture and Nature Resources Department of St Helena in the Endemic Plants Propagation Programme (EPPP). This was established to protect threatened plant species and their habitats and, over the last few years, has been co-ordinated by the Agriculture and Forestry Officer (Benjamin *et al.*, 1986; Cronk 1980, 1986 a,b,c). Research on the conservation biology of the St Helena ebony and St Helena redwood was carried out in 1994–1995 (Rowe 1995) and there are currently various studies of the rarest endemic plant species funded by WWF-UK.

The SEDS initiative set out the research requirements to support an integrated biodiversity programme. The Advisory Committee for the Environment is actively seeking support for biodiversity assessments of lichens, lower plants and invertebrates (Rowe *in litt.* 1998). A checklist of the recorded fauna is given in Royal Botanic Gardens Kew (1993).

Plants

The native flora consists of about 60 species of flowering plants and ferns, 50 of which are endemic (in ten plant genera). The endemics are of great biogeographical interest, notably the giant woody members of the Compositae known as ‘cabbage trees’. Of the endemic species, six are now extinct, and 40 are threatened with extinction on a global scale. St Helena boxwood *Melissia begoniifolia* (Solanaceae), which had not been recorded for over 100 years, has been recently re-discovered and attempts are now being made to propagate the one remaining plant from seed (Royal Botanic Gardens Edinburgh, *in litt.*). Hybridisation, genetic and reproductive problems associated with rarity keep St Helena’s endemics close to the brink of extinction.

The conservation status of the following tree species are listed in the world list of threatened trees (Oldfield *et al.* 1998).

Acalypha rubrinervis (Euphorbiaceae) (EX): formerly a rare shrub or small tree of thickets on the central ridge above 600 m, it became extinct in 1870.

Commidendrum robustum ssp. gummiferum (Compositae) (EX): although it is doubtful whether any pure material of this gumwood subspecies still exists, its characters are frequently seen in hybrid populations at Peak Dale. The taxon was at one time distributed on the central ridge between 400 and 700 m. There is also a tree of questionable identity found in Deep Valley. The genus consists of five species, all endemic to St Helena.

St Helena gumwood *Commidendrum robustum subsp. robustum*, (EN): gumwood woodland covered over 60% of St Helena in the 16th century. Extensive cutting of trees for their fine timber in the following centuries led to their reduction to a few small stands. Only two viable populations now remain in Peak Dale and Deep Valley, accounting for less than 2,500 trees. Recent evidence indicates sheep grazing and competition with introduced plants may be a problem. Biological control appears to have helped rid infestations of the homopteran pest, *Orthezia insignis*. The genus consists of five species, all endemic to St Helena.

Bastard gumwood *Commidendrum rotundifolium* (Compositae) (EW): formerly one of the common gumwoods occurring in dry areas, by the end of the 18th century stands were reduced to a few isolated localities and the species was considered extinct at the end of the 19th century. A tree was rediscovered on an inaccessible cliff at the southern edge of Horse Pasture in 1982 but, by 1986, it had blown down in a gale. Nineteen trees, seedlings of the tree which blew down, were planted at Pounceys in the mid-1980s. Attempts to root cuttings have failed and seed from these trees have so far failed to germinate.

Scrubwood *Commidendrum rugosum* (Compositae) (VU): low domed shrub of the Crown wastes. At one time it became entirely confined to cliff localities. Since the extirpation of goats, population numbers are believed to be expanding. The total population consists of several thousand individuals. Sub-populations are very small and restricted geographically, making them vulnerable to stochastic events. They vary from approximately 1,000 in places such as South West Cliffs to scattered individuals on the approach to the Barn. The species is able to tolerate severe drought and saline conditions. There is evidence that hybridisation is occurring.

False gumwood *Commidendrum spurium* (Compositae) (CR): a small tree, known from just 12 individuals in the wild: one at Coles Rock, one old plant with three young ones at Mount Vesey,

and one fenced individual on a ridge between Cason's Gate and Oaklands. The species has been brought into cultivation. In the past, trees were recorded as growing on the tops of the highest mountains. The wood was chiefly used as a source of fuel.

She cabbage *Lachanodes arborea* (Compositae) (CR): once a common tree, occurring on the central ridge between 600 and 800 m, the species was thought to be extinct until 1976, when three old trees and some seedlings were discovered in pastureland above Osborne's Cottage. Seedlings have since been raised and planted out. It is a short-lived tree, which takes considerable effort to conserve in cultivation. The genus is monotypic.

Black cabbage tree *Melanodendron integrifolium* (Compositae) (VU): the most abundant of the endemic cabbage trees. A total of probably more than 1,000 individuals occur in various localities on the central ridge, principally Diana's Peak, Actaeon, Cabbage Tree Road, near Sandy Bay, High Peak and the Depot. Populations are healthy, appearing to regenerate well, although under competitive pressure from invading introduced species. The genus is monotypic.

St Helena olive *Nesiota elliptica* (Rhamnaceae) (EW): a small tree, once known from localised populations on the highest parts of the eastern central ridge; it became noticeably rare in the 19th century, when the population was recorded to consist of only 12 to 15 trees on the northern side of Diana's Peak. A single tree was discovered on a precipitous cliff near Diana's Peak but died in 1994. Of the many attempts to propagate cuttings from the tree, most have failed. One cutting grew to a tree of 2 m in Scotland but died in 1997. Now surviving are two seedlings at Pounceys, one seedling re-introduced to the Peaks, and one seedling in the nursery. The species was known to be pollinated by an endemic syrphid fly which also visits other endemic trees. The genus is monotypic.

'Dogwood' *Nesohedyotis arborea* (Rubiaceae) (EN): one of the commoner endemic trees of St Helena with 132 adult trees growing in damp tree-fern thickets on the central ridge. The 24 subpopulations are small and clumped because of human land-use patterns. The species is dioecious, although males can set seed occasionally, and a small part of the population is currently reproductively isolated. It is pollinated by an endemic syrphid fly, which is also known to visit other endemic trees. The genus is monotypic.

Whitewood *Petrobium arboreum* (Compositae) (EN): the smallest of the cabbage trees, it is confined to damp areas of relict tree-fern thicket or cabbage-tree woodland on the upper slopes of the central ridge above 600 m, principally at Cuckhold's Point, below Diana's Peak, Actaeon, above Grapevine Gut, Cabbage Tree Road. A total of approximately 150 plants exist. The genus is monotypic.

Phyllica polifolia (Rhamnaceae) (CR): occurring now only as a low straggling bush, the last tree-form specimen died recently at Blue Hill. Populations have been reduced to dry locations on cliffs, e.g. High Hill (27 plants), Lot (60 plants), Man's Head (15–20 plants) and one plant between Distant Cottage and Asses Ears. Although there may be up to 100 plants, they are fragmented in occurrence and vulnerable to competition from introduced plants.

He cabbage *Pladaroxylon leucadendron* (Compositae) (CR): a small spreading tree, which is found in a number of localities between 720 and 800 m on the central ridge, particularly at High Peak, from Mount Actaeon to Cuckhold's Point, also at Cabbage Tree Road and Diana's Peak. The total population size is probably less than 50 individuals. Regeneration has been successful where invasive plants, such as New Zealand flax, have been cleared. The genus is monotypic.

Trochetiopsis ebenus (Sterculiaceae) (CR): at one time this species of ebony occurred as a small tree,

distributed commonly in dry places between 200 m and 500 m, especially in northern and western parts of the island. The populations declined sharply in the 18th century, principally because of goat grazing, to what was thought to have been extinction. In 1980, two low shrubs were discovered on a cliff near the Asses Ears. Cuttings from the plants have rooted and almost 4,000 propagated specimens have been planted out around the island. The genus is made up of just three species endemic to St Helena, two of which are extinct in the wild.

St Helena redwood *Trochetiopsis erythroxylon* (Sterculiaceae) (EW): the species was once common around the central ridge, but population declines were rapid as early settlers overexploited the tree for its red timber and bark, and introduced goats reduced any chance of regeneration. The last wild tree occurred in Peak Gut in the 1950s and is the ultimate source of the few existing individuals in cultivation. Inbreeding depression and a depauperate gene pool are manifest in the poor growth and high mortality of cultivated specimens. The hybrid between cultivated forms of this species and *T. ebenus*, by contrast, is extremely vigorous and may provide the only chance of survival for this part of the gene pool.

St Helena ebony *Trochetiopsis melanoxylon*, (EX): a dwarf ebony, the identity of which has been confused with *T. ebenus* for the past 170 years. It probably occurred as a small shrub in arid areas of the north under the rain shadow of the central ridge. The last sighting of it was recorded in 1771.

The conservation status of other endemic vascular plants is recorded by Royal Botanic Garden Kew (1993).

The bryophytes of St Helena include 23 moss species, with 12 endemics, and 20 liverwort species with 11 endemics. The bryophytes are concentrated mainly in the remnant areas of endemic-rich vegetation, but they are also found in humid areas or valley bottoms dominated by exotic

species. The recorded lichen flora consists of 52 species of which 16 are endemic. The fungi have not been recently studied. Records mainly include widespread and introduced species. A list of over 60 marine algae of St Helena is provided by Lawson *et al.* (1993). One species of red algae *Predaea feldmannii* is reported to be endemic. In general the lower plants are poorly known.

Invertebrates

Around 300 endemic invertebrates have been described. Of the 256 beetles recorded on the island, 61.3% are endemic. Notes on critically endangered endemic invertebrate species are given below, based on Seal *et al.* (1993) unless stated otherwise. A total of 55 Coleoptera spp., two species of Diptera, one species of Mollusca, and one of Crustacea were evaluated for conservation status by Seal *et al.* (1993).

St Helena dragonfly *Sympetrum dilatatum* (EX): this species has not been seen with certainty since 1963 and is considered to be extinct in the 1996 IUCN red list of threatened animals (IUCN 1996).

Giant earwig *Labidura herculeana* (CR): the world's largest earwig; last collected in the Plain areas in 1965–1967, no individuals have subsequently been seen despite searches in 1988 and 1993 (IUCN 1996).

Giant ground beetle *Aplothorax burchelli*: last collected in the Plain areas in 1967, no individuals have subsequently been seen despite searches in 1988 and 1993.

Pseudophilochthus grayanus (CR): an endemic groundbeetle, this species is confined to Diana's Peak.

Pseudophilochthus dicksoniae (CR): an endemic groundbeetle, this species is confined to Diana's Peak.

Pseudophilochthus sublimatus (CR/EX): a species of endemic groundbeetle, it was recorded from the High Central Ridge in an area which has subsequently eroded.

Pseudophilochthus trechoides (CR): a species of endemic groundbeetle restricted to forest on the High Central Ridge.

Pseudophilochthus gemmulipennis (CR): an endemic groundbeetle, this species is confined to Diana's Peak.

Pseudophilochthus evanescens (CR): a species of endemic groundbeetle, restricted to forest in the Cabbage Tree Road area of the High Central Ridge.

Apteromimus platyderoides (CR): a species of endemic groundbeetle, recorded from forest of the High Central Ridge.

Apteromimus wollastoni (CR): a species of endemic groundbeetle, recorded from forest in the Cabbage Tree Road area of the High Central Ridge, living in rotten dead tree stems.

Endosmatium megalops (CR): a species of endemic groundbeetle, recorded from Actaeon and Diana's Peak.

Succinea sanctaehelenae bensoniana (CR): the arid form of the endemic blushing snail, it occurs on Horse Point and Prosperous Bay Plain. The estimated population in 1993 was 600 individuals. The species as a whole is globally threatened.

Nesiotes barbatus (EX?): an endemic weevil of bastard gumwood forest last collected in 1880.

Nesiotes fimbriatus (EX?): an endemic weevil of gumwood forest.

Nesiotes brevisculus (EX/CR): an endemic weevil of Cabbage Tree forest, recorded from Diana's Peak, *High Peak and West Lodge*.

Acanthinomerus wollastoni (CR): an endemic weevil of Cabbage Tree forest.

The marine invertebrate fauna of St Helena has been subject to considerable study, with particular attention to molluscs, echinoderms and crustaceans. Of the 26 echinoderm species recorded on the St Helena shelf, two are endemic to St Helena, and four species together with three subspecies are found only at St Helena and Ascension. Eleven species of starfish have been recorded on the shelf including three endemics: *Astropecten sanctaehelena*, *Astropecten variegatus* and *Narcissia trigonarea helenae*. *Tethyaster magnificus* is known only from St Helena and Ascension. Five species of brittle-star are recorded from the St Helena shelf and ten species of sea urchin. *Euclidaris clavata* is restricted to St Helena, Ascension and St Paul's Rocks. The sea urchins *Tretocidaris spinosa*, *Echinometra lucunter polypora* and *Pseudoboletia maculata atlantica* are known only from Ascension and St Helena (Royal Botanic Garden Kew 1993).

Fish

The fishes of St Helena have been reviewed by Edwards and Glass (1987) and the fisheries have been subject to a recent study (Edwards 1990). Currently 138 species of fish are known from the waters around St Helena. Endemic species of marine fish are St Helena dragonet *Callionymus sanctaehelena*, the skulpin *Physiuculus helenensis*, deep-water jack *Pontinus nigropunctatus*, silver eel *Ariosoma mellissii*, Melliss's scorpion fish *Scorpaena mellissii*, deepwater greenfish *Holanthias fronticinctus*, bastard five finger *Chromis sanctaehelena*, cavalley pilot *Stegastes sanctaehelena*, greenfish *Thalassoma sanctaehelena*, and Springer's blenny *Scartella springeri*. A further 16 species are recorded only from St Helena and Ascension (Royal Botanic Garden Kew 1993).

St Helena dragonet is considered to be critically endangered in the IUCN red list. It is only found at Sugar Loaf Hill and was described in 1983 from one specimen collected in the 1930s. The skulpin, a deepwater species, is also considered to be critically

endangered, deepwater jack is considered to be vulnerable (IUCN 1996).

Reptiles

Hawksbill turtle *Eretmochelys imbricata*, (EN) and green turtle *Chelonia mydas*, (CR) occur around the island but are rarely observed.

Birds

The endemic St Helena plover *Charadrius sanctaehelena* occurs only in the northern, flatter parts of the interior of the island, where in the mid-1980s several hundred pairs were thought to survive (Collar & Stuart 1985). Intensive study during 1988–1989 showed that some 450 birds were then present, at highest densities in relatively dry, flat pastures. These studies also showed that apart from possible (but undocumented) predation by, or competition from, some introduced species, the only threat would appear to lie in potential land-use changes (McCulloch 1991, 1992). Censuses in 1991, 1992 and 1993 have suggested a steady decline from c. 375 (1991) to c. 315 (1993), with numbers on Deadwood Plain, a key area, halved since the late 1980s (Collar, Crosby & Stattersfield 1994).

Mammals

The coastal waters of St Helena support large numbers of bridled dolphin *Stenella attenuata*, smaller numbers of bottlenose dolphin *Tursops truncata*, and occasional visits by spinner dolphin *Stenella longirostris*. The humpback whale *Megaptera novaeangliae* migrates annually to the island from the southern Atlantic.

Species protection

- **The Forestry and Indigenous Trees and Plants Preservation Rules 1959:** details plants to be protected wherever they grow on the island, and annexed amendments include all major endemic species.

- **The Endangered Endemic and Indigenous Species Protection Ordinance 1996 and the Endangered Endemic and Indigenous Species Protection Order 1996:** replace the Wildlife (Protection) Ordinance 1984.
- **The Birds Protection Ordinance 1996:** has replaced the Game and Wild Birds (Protection) Ordinance 1950 and its subsequent amendments.

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Conservation agencies

In St Helena conservation matters come under the

administration of the Agricultural and Natural Resources Committee of the Legislative Council, which oversees agricultural, forestry and fisheries activities.

The Director of the Department of Agriculture and Natural Resources (previously the Department of Agriculture and Forestry) heads four divisions; the Agricultural, Research, Administrative, and Forestry Divisions. Conservation and management of forest reserves is largely the responsibility of the Forestry Division.

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