

## **The Botanical Diversity of the Atewa Range**

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## Chapter 2

### The botanical diversity of the Atewa Range

Carel C.H. Jongkind

#### INTRODUCTION

In the early nineties, when I visited Atewa for the first time, we walked “the old geological survey road”, at that time a heavily eroded and overgrown road starting from the main road between Kibi and Asiakwa and going up to the top of the range. Later, after the road was brought back into use for timber extraction, even taxis were seen driving people up the ridge to collect whatever they needed from the forest. When walking west along a footpath located in the north (near Asiakwa), it was impossible at that time to avoid hearing the chainsaws from illegal timber extraction. One had to jump off of the path from time to time, when people carrying large planks of freshly sawn wood on their heads were almost running downhill. During this same period, the already narrow connection between the southern and northern parts of Atewa was mostly cut away by large scale illegal farming. Remembering this it is almost surprising that rich forest remains on the Atewa Range that is worth preserving.

Several foresters and botanists had already studied the forest on the Atewa Range many years before my first visit. The work of J.B. Hall and M.D. Swaine is especially well known. They were the first to recognize the forest of the Atewa Range, and of the less important Tano Ofin reserve, as a rare and special kind of vegetation for Ghana, a vegetation they called Upland Evergreen forest. With what is known today, it is clear that the Atewa Range was, and still is, a stepping stone for many forest species. During the driest periods of the Ice Ages, Atewa was at least partly covered with forest while data from sediments in Lake Bosumtwi (a lake which today is situated in the middle of the closed forest area of Ghana) have shown that forest cover disappeared from most of southern Ghana during the past ten thousand years (Maley 1991, Talbot and Johannessen 1992). Furthermore, several rare but widespread species are, in Ghana, only found on Atewa and many Upper Guinea endemics have their easternmost foothold within this range (see Figure 2.1 for examples).

#### METHODS

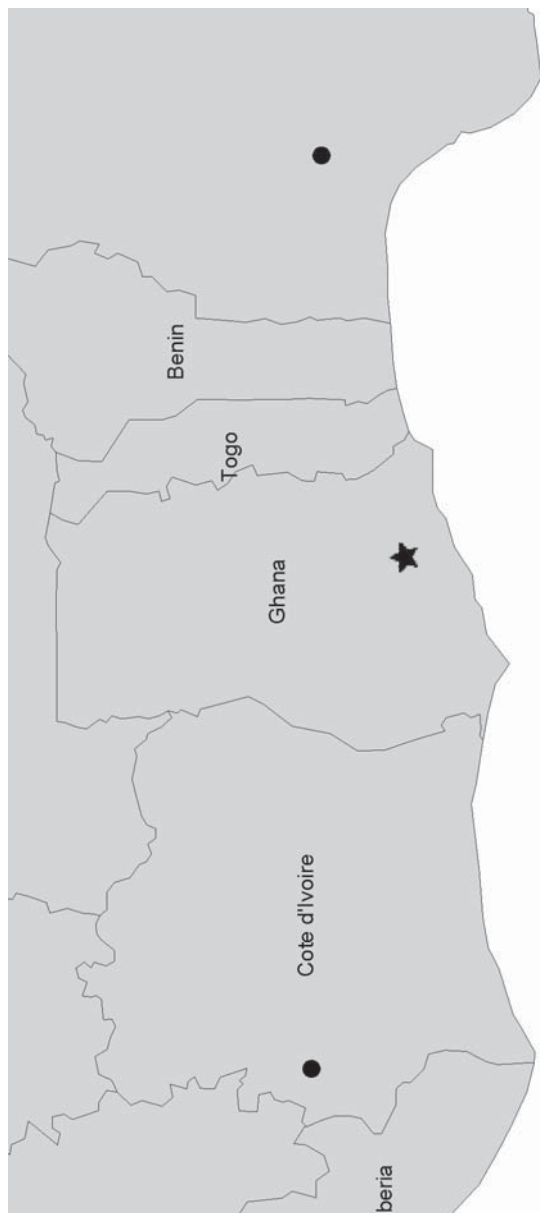
This report is based on earlier research and reports, no new field work has been carried out. Most important were the report prepared by W.D. Hawthorne (1998), who studied the forests of Ghana for many years, and the data available in the herbarium database at Wageningen. An important part of the Upper Guinea data in the database at Wageningen was digitized and updated for the ECOSYN project (1996-2005) at the Wageningen University, a research project on plant biodiversity and management of West African forests. This database currently includes data from about 67,000 herbarium specimens from Upper Guinea. The maps presented in this report are extracts from that database.

#### Botanical Samples in Atewa

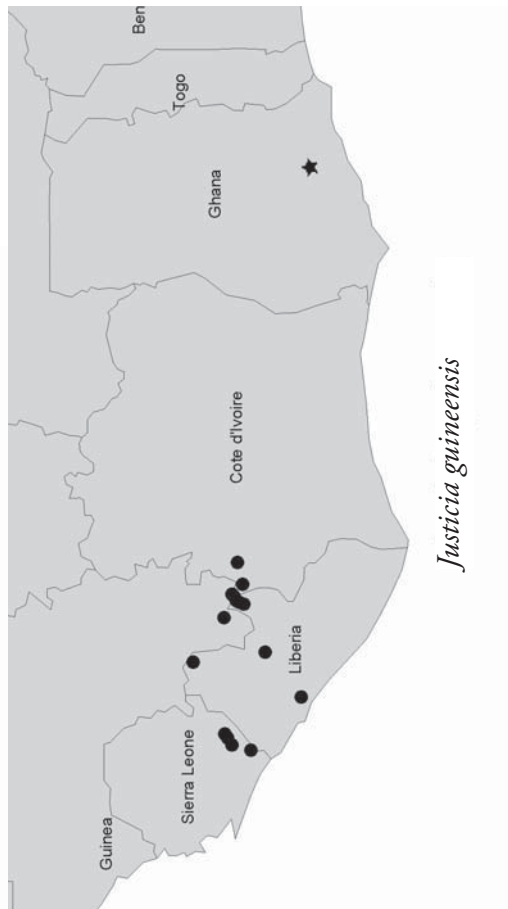
Through the years many foresters and botanists have collected botanical samples in Atewa. To visit Atewa you do not need to plan an extensive expedition since it is in walking distance from the main Accra-Kumasi road – from Accra a visit is an easy one-day trip. As a result of this relatively easy access, several new plant species have been found for the first time on Atewa (e.g. *Aframomum atewae*). Most of the preserved samples from the area are stored in a small number of herbaria, in Ghana these are the herbaria in Legon and Kumasi, in Europe they can be found mainly in the herbaria in Oxford, Wageningen and Kew. These herbaria are in the process of digitizing their collections, and a Checklist for Atewa will be much easier to compile and much more complete when all these herbarium collections are online.



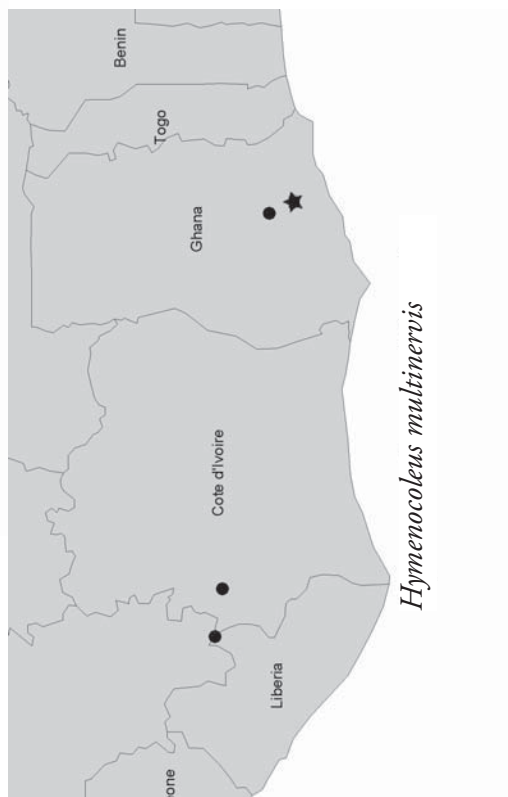
Figure 2.1. Species distribution maps of several rare plant species known from the Atewa Range. Data are extracted from the herbarium database at Wageningen University.



*Epistemma assianum*



*Justicia guineensis*



*Hymenocoleus multinervis*

Figure 2.1. cont.

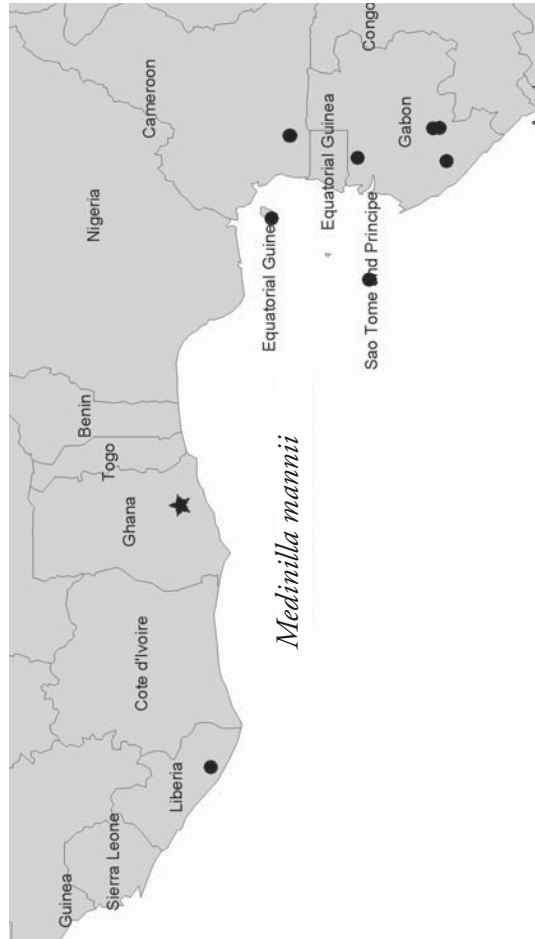
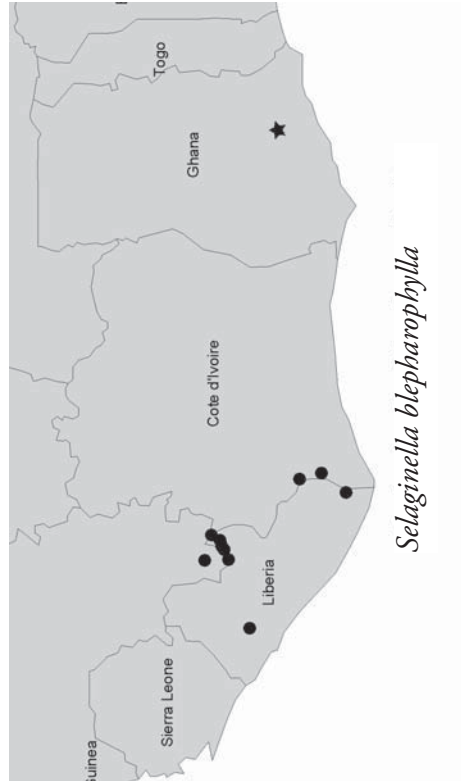
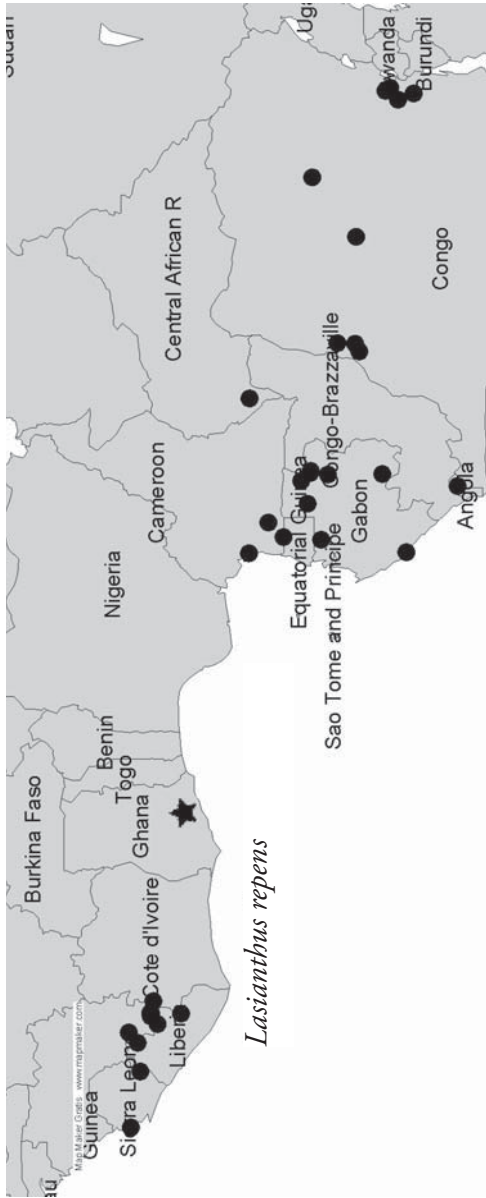


Figure 2.1. cont.

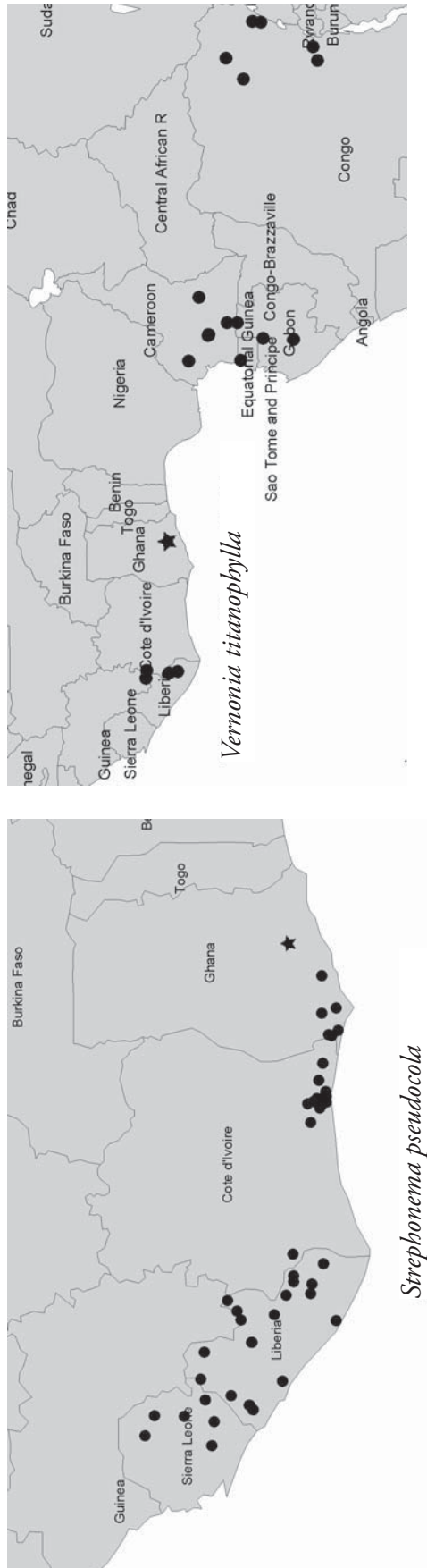


Figure 2.1. cont.

### The Vegetation of Atewa

Atewa is special in the first place because of its Upland Evergreen forest vegetation (Hall and Swaine 1976, 1981) rather than due to the presence of a large number of endemic species. As far as is known, there are no endemic plant species found in the Atewa Range. However, several species from Atewa (like *Aframomum atewae*, *Epistemma assianum*, *Hymenocoleus multinervis*, and *Ixora tenuis*) are known from only a few other places and most of these other locations are threatened as well. In Ghana there is no other place like Atewa. The other Upland Evergreen forest, on Tano Ofin, is smaller and even less intact and the mountains near the border with Togo have a much drier climate. Outside Ghana there is no upland forest known with this combination of species. Atewa, and especially the northern part of the range, is covered with this vegetation because of the abundant rain and fog on and around the plateau which keeps the forest on top very humid for most of the year, resulting in abundant epiphytes and a species-rich forest undergrowth. The local climate at the top of the range is, on a smaller scale, intensified by rocky valleys like Pusu Pusu and by upland swamps. This condition makes possible the common presence of woody epiphytes like *Anthocleista microphylla*, *Epistemma assianum* and *Medinilla mannii*, a group of plants rarely seen in most tropical West African forests, and characteristic upland forest species like *Cyathea manniana* (Treefern), *Rubus pinnatus* var. *afrotropicus* and *Hymenocoleus multinervis*. Atewa is also home to an abundance of plants growing only in the shade of closed high forest like *Alsodeiopsis staudtii*, *Buforesstia obovata*, *Cola boxiana*, *Dicranolepis persei*, *Diospyros chevalieri*, *Drypetes pellegrini*, *Mapania baldwinii*, *M. coriandrimum*, *Nephtytis afzelii*, *Pauridiantha sylvicola*, and large forest trees and lianas otherwise only found in wet lowland forest like *Combretum multinervium*, *Neolemonniera clitandrifolia*, *Newtonia duparquetiana*, *Strephonema pseudocola* and *Strychnos icaia*.

Appendix 1 lists 765 different species of vascular plants including 106 Upper Guinea endemics known from Atewa (Upper Guinea sensu White 1979) taken from different sources. The larger part is taken from an unpublished 1998 report by William Hawthorne that is itself already a combination of different sources. A smaller part is taken from the herbarium database at Wageningen University, which includes specimens taken from Atewa by several collectors and deposited in various herbaria. A few other species on the list are mentioned by Hall and Swaine (1981). The list is without doubt incomplete. Many additional species collected from Atewa are stored in herbaria around the world, most of which were neither seen for this report, nor cited in earlier reports or publications. In addition to this, I am sure more species in the range are still to be discovered, especially in the canopy.

For a number of species from Atewa that are rare in Ghana or are otherwise mentioned above, the geographical distribution is shown in Figure 2.1. Species distributions mapped include *Aframomum atewae* (Zingiberaceae), *Asple-*



*nium schnellii* (Aspleniaceae), *Cola boxiana* (Sterculiaceae), *Costus deistelii* (Costaceae), *Epistemma assianum* (Apocynaceae, Asclepiodeae), *Hymenocoleus multinervis* (Rubiaceae), *Justicia guineensis* (Acanthaceae), *Lasianthus repens* (Rubiaceae), *Medinilla mannii* (Melastomataceae), *Selaginella blepharophylla* (Selaginellaceae), *Strephonema pseudocola* (Combretaceae) and *Vernonia titanophylla* (Compositae).

For a more extensive description of most species see the 1998 report by W.D. Hawthorne and Hawthorne and Jongkind 2006.

## RECOMMENDATIONS

In preparing this report it became clear that little is published about the epiphytic flora of Atewa while this flora is without doubt very rich. I am sure more important data could be found on this subject in the abovementioned herbaria. I expect that one month's work would extend the species list considerably, especially the number of species in the Orchid family which is likely to double several times. On top of this, specialized canopy fieldwork would certainly increase our knowledge, as all data about epiphytes seem to come from plants that have fallen down accidentally. Thus, more systematic collection of data for this group of plants is especially needed.

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