

# Practical hints for user-friendly field guides

## Validated RNRRS Output.

Foresters, botanists, herbalists, park managers and many others often have to prepare simple handouts, leaflets, guides, posters and public information materials about plants and trees. Now, a new manual gives them practical hints on how to tailor information materials to particular audiences. Plus, there's a website where they can find information to help identify flora and download copyright-free pictures. Semi-literate villagers in southwest Ghana could name 80% of the trees in the forest after just a short session with a farmer-friendly photo guide prepared with the help of the manual. Before, they could name less than 5%. In Sierra Leone and Tanzania, other guides are also already in use.

Project Ref: **FRP45:**

Topic: **4. Better Water Harvesting, Catchment Management & Environments**

Lead Organisation: **University of Oxford, UK**

Source: **Forestry Research Programme**

---

## Document Contents:

[Description](#), [Validation](#), [Current Situation](#), [Current Promotion](#), [Impacts On Poverty](#), [Environmental Impact](#),

---

## Description

**FRP44**

## Research into Use

NR International  
Park House  
Bradbourne Lane  
Aylesford  
Kent  
ME20 6SN  
UK

## Geographical regions included:

[Cameroon](#), [Caribbean](#), [Ghana](#),

## Target Audiences for this content:

[Forest-dependent poor](#),

**A. Description of the research output(s)****1. Working title of output or cluster of outputs.**

Comparison and development (in Grenada, Cameroon & Ghana) of tropical forest plant field guide formats with a handbook to assist production of field guides.

Suggested new working title:

User-friendly field botany; activating new ways for the flora to reduce poverty in Africa.

**2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.**

Forestry Research Programme

**3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.**

R7367 (ZF0124). Collaborating in West Africa with

Limbe Botanic Garden, Limbe Cameroon;

Ghana Forest Service, especially RMSC division (Ntim Gyakari) in Kumasi; Abu Juam Musah, currently with Northern Savanna Biodiversity Project, Tamale; and Patrick Ekpe, Ghana herbarium, University of Legon; (We also had collaborators in non target countries Grenada and Mexico).

Would aim to collaborate in future also with Fourah Bay College, Freetown, Sierra Leone (probably Prof. A. Karim, Botany dept) and probably the herbarium in the university of Dar Es Salaam.

**4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? (max. 400 words). This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.**

The '**field guide**' outputs were all produced in 2001-2005 and finally published in 2005-6. They were aimed at improving **knowledge of plants** in the **biodiverse** tropics by facilitating their **identification** - especially in the **field and at a local level** amongst **farmers, foresters, eco-tourists** and their local **tour guides** - and by **stimulating production** of **books, pamphlets, posters** and other materials about them which can be used or traded. The local user base, and emphasis on **appropriate field guides** rather than standard botanical works are emphasised as being relevant to DFID livelihood goals, especially **poverty reduction**. All outputs help link global and local knowledge of biodiversity. Relevant project outputs were:

1. A manual (*Plant Identification: Creating User-Friendly Field Guides for Biodiversity and Management*, 2006, Earthscan) by Lawrence and Hawthorne ((project r7475 & r7367 respectively), to help a wide range of people

write user friendly field guides for an even broader range of people in the tropics. The main users of this specific output (e.g. in Ghana or Sierra Leone or Tanzania) are most likely to be technical botanists in local herbaria or technically minded people in other institutions (e.g. **herbal medicine** research **wildlife** and **park management** institutes)

2. Actual field guides made by r7367 (in the case of 2b, in conjunction with an EU project) as an output of research exercises

2a. *Photoguide for the forest trees of Ghana*, which was designed with and for local communities in Ghana enabling them to identify large trees which may be remnant on their farms or occur in local forests;

2b. *Woody Plants of Western Africa* a more technical book than ref.2a for local users, but designed to help experts create other forest field guides in Africa from Ghana to Senegal, in conjunction with output 1.

2c. *Ankasa* –an ecotourist guide for Ankasa national park. A small book designed as a product which local vendors could use, or sell to tourists visiting National parks and other forests in SW Ghana.

3. The Virtual Field Herbarium, or VFH (<http://www.herbaria.plant.ox.ac.uk/VFH>)

A **web site** with equivalent aims to 1, allowing **botanical images** and other material to be downloaded for use in local guides; and containing information that itself might help people identify plants in the field. The work behind the VFH represents a type of service to field guide producers. At one level this is an accompaniment to output 1; at another level it is a resource to help identify plants and find more information about them.

We would propose, where appropriate, to link up with the FRP funded BRAHMS and *Acacia* projects in any future implementation or promotion of these outputs.

5. *What is the type of output(s) being described here?*

*Please tick one or more of the following options.*

<b>Product</b>	<b>Technology</b>	<b>Service</b>	<b>Process or Methodology</b>	<b>Policy</b>	<b>Other Please specify</b>
x	x	x	x		

6. *What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment*

Plants (in a broad sense, not just commercial ones). Output 1 could help users produce guides to other groups of organisms.

7. *What production system(s) does/could the output(s) focus upon?*

*Please tick one or more of the following options. Leave blank if not applicable*

<b>Semi-Arid</b>	<b>High potential</b>	<b>Hillsides</b>	<b>Forest-Agriculture</b>	<b>Peri-urban</b>	<b>Land water</b>	<b>Tropical moist forest</b>	<b>Cross-cutting</b>
x	x	x	x	x	x	x	x

8. *What farming system(s) does the output(s) focus upon?*

Please tick one or more of the following options (see Annex B for definitions).

Leave blank if not applicable

<b>Smallholder rainfed humid</b>	<b>Irrigated</b>	<b>Wetland rice based</b>	<b>Smallholder rainfed highland</b>	<b>Smallholder rainfed dry/cold</b>	<b>Dualistic</b>	<b>Coastal artisanal fishing</b>
x						

9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**).

Our outputs facilitate production of field guides and other user friendly guides to plants; however other information on plants could be linked in the same products (books posters etc). The information in the VFH could, for instance, have more information derived from other DFID-FRP projects (eg African *Acacia*, *Leucaena*, Central American Trees) in a way that would make that useful information more widely known. The Brahms software is linked to the VFH (and to the *Acacia* project) anyway, as Brahms is the database used for supplying data to the web server, so the Oxford Forestry related projects form a *de facto* natural cluster. But there is an even greater scope for any/all Brahms projects to supply data that is publicly available via the web

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

Brahms R7276 (see above)  
 Mesoamerican tree species source book (R7588)  
 African *Acacia* species (R6550)  
 Weed Management in Irrigated Rice (weed guides) R8409, R8477 etc.

## Validation

### B. Validation of the research output(s)

10. **How** were the output(s) validated and **who** validated them?

Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the “who” component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (**max. 500 words**).

Part of R7367’s main design feature was to make simple field guides (‘guidelets’) and test them on a variety of users for fitness for purpose, in terms of accuracy, user-perceived usability, attractiveness and value for money. The survey result set was the primary output, described in the outputs: *Plant Identification* book and on the VFH

website. By the end of the project, the farmer-friendly tree guide could be used by semi-literate (often illiterate in English) residents of small forest zone villagers, allowing them to identify 80% of trees in biodiverse forest of S W Ghana, based on 20 minutes training, when with their normal background knowledge (tested beforehand) they could name < 5% of the same trees. Hence the outputs were validated, in the Ghana case, with the proposed end users, mainly farmers and others villagers in farming communities. As the final book has only just been shipped to Ghana, the actual final use has not been verified by anyone.

The use of the other outputs has again barely been verified, because they have only just been published, but the material in them has been repeatedly checked and tested and reviewed by numerous collaborators and attendants e.g. at workshops called to discuss the contents.

The *Plant Identification* book has received one book review in a journal so far, which was very positive BES Bulletin, 37(4): 73 (December 2006). We anticipate many more reviews are in the pipeline for this and the other books.

The *Virtual Field Herbarium* has been peer reviewed by an anonymous reviewer in the online journal Biotechniques, webwatch section 2006 col. 41: 4 p 377. 'Its biography alone with over 800 entries, is a bonanza for tropical botanists'.

#### 11. **Where and when** have the output(s) been validated?

*Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above (max 300 words).*

All the other project guidelets were tested in a series of trials organised on over 1500 participants and 30,000 person-plant interactions, as described in project outputs themselves. Specifically:

The Ghana Tree photoguide has been tested in 5 different areas scattered around the forest zone (from wet evergreen to dry semideciduous) in Ghana, in the villages around the forests of Neung South, Fure Headwaters, Boi Tano, Bandai Hills North, and Jachie sacred grove near Kumasi, between 2001 and 2003. More than 400 respondents were involved, each naming 20 trees with copies of the draft guide.

The guide to *the Woody Plant of Western Africa* has existed in draft form for three years and during that time has been continuously used and upgraded in Oxford, Wageningen and Legon herbarium, Accra based on user feedback.

The VFH web site has been online for 2 years, and gradually improved as resources allow based on feedback from users online and those spoken to personally.

Material for the Ankasa field guide, rattans section were tested on villagers, forest guards and park staff in Boi Tano and Ankasa National parks in June 2003. All users scored 100% accuracy so the tests were deemed too easy and abandoned in favour of the more tricky tree guides.

The tests have all been conducted in forests, the hardest production system to identify within, but there is no reason why the results shouldn't be applicable to the same species in other habitats.

---

## Current Situation

### C. Current situation

12. **How and by whom** are the outputs currently being used? Please give a brief description (**max. 250 words**).

The *Plant Identification* book is presumably being used by people who have bought it but we have not been surveying them. The shipment of all books to West Africa is still in transit, but users will include a wide variety of students, lecturers technicians and foresters and NGO staff. We anticipate a few at least of these will gain enough confidence to produce their own field guides for local areas, especially when used in conjunction with the *Woody Plants of Western Africa* a source of botanical information appropriate for field use. The other books are also all in transit to Ghana at the time of writing (Due in Tema Dec. 10, 2006).

The VFH web site has many and varied browsers, as revealed by feedback emails and the server log of visitors. Numerous users have requested images for use in a variety of functions, although so far only three of these have been from Africa. One of these was requesting images for use in a field guide for Southern Tanzania; another was for use in a book about useful African plants. One was for a student project on *Cola*.

13. **Where** are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used (**max. 250 words**).

See 12 above. The VFH –a web site - is the main item currently in use and that is apparently global. However, use in Africa is probably limited to the capital cities, partly due to poor internet facilities elsewhere.

14. **What is the scale of current use?** Indicating how quickly use was established and whether usage is still spreading (**max 250 words**).

See 12 above. Usage has barely started.

15. **In your experience what programmes, platforms, policy, institutional structures exist that have assisted with the promotion and/or adoption of the output(s) proposed here and in terms of capacity strengthening what do you see as the key facts of success?** (**max 350 words**).

DFID's Forest Research Programme was very helpful, in the obvious sense that they assisted the project as a whole including encouragement of promotion and dissemination of the original project, and for promoting books for Ghana and Grenada. On a general level, the Convention on Global Biodiversity has helped to keep biodiversity issues high on government and NGO agendas, and continues to create a demand for field guides for use in local biodiversity assessments and national action plans; DFID also therefore continues to be aware of the importance

of biodiversity to livelihoods and poverty alleviation. The guide to *Woody plants of Western Africa*, to which the FRP project made a significant yet relatively small contribution, is mainly a product of short term EU funding (via the Ecosyn project), but this was aimed at producing rather than disseminating outputs. We are only now struggling to arrange dissemination through Western Africa, and promotion in Sierra Leone, Liberia and Ivory Coast represents a serious challenge with almost no budget. IUCN West Africa has agreed to help distribute and disseminate this, the Ghana tree photoguide and *Plant Identification* in countries other than Ghana.

In terms of capacity strengthening, for the last few years support for biodiversity related institutions has become short term and lack of resources is very limiting, and at the mercy of sometimes fickle policies of NGOs like WWF and Conservation International, who manage to channel many of the global funds for biodiversity management into institutions that incidentally sustain the NGOs and private consultants rather than independent or national centres of knowledge. Any advances in promoting biodiversity knowledge is therefore in spite of current institutional climates rather than because of them.

---

## Current Promotion

### D. Current promotion/uptake pathways

16. **Where** is promotion currently taking place? Please indicate for each country specified detail what promotion is taking place, by whom and indicate the scale of current promotion (**max 200 words**).

Ghana Forest Service (Alex Asare and Ntim Gyakari, RMSC) will hold a workshop in February 2007 in Ghana to disseminate the tree photoguide, *Plant Identification* and *Woody Plants of Western Africa*. At this workshop NGOs will be given free copies to distribute in their own project domains. In the other Upper Guinean countries, e.g. Sierra Leone, Liberia and Ivory Coast, nothing is happening due to poor infrastructure and lack of funds to do so. Earthscan *Plant Identification* and the *Woody Plants of Western Africa* have their own publishers who promote the books through their websites and at book fairs, mainly in Europe (*Woody Plants* has been shown at book fare in Southampton in September 2006, and at book fairs in Germany and USA). The *Woody Plants of Western Africa* will be publicised (by Kew) at the AETFAT 2007 conference in Cameroon.

We are seeking to publicise the VFH website by steadily encouraging links to the website. We are seeking to increase links with the PROTA (African useful Plants) website; as of Dec. 2007 we have just received firm confirmation of a willingness to collaborate. The African Plants Initiative has also expressed interest in linking websites, with the VFH providing the field imagery to match their other online information. However, we are still seeking funding to help us do so.

17. **What are the current barriers preventing or slowing the adoption of the output(s)?** Cover here institutional issues, those relating to policy, marketing, infrastructure, social exclusion etc. (**max 200 words**).

There has been too little time since publication of any of the outputs. There is also a general lack of funds to pay for initial print runs of field guides at a price which can be both used and afforded at village level (once started the process could be self sustaining in many cases). University of Ghana apparently does allocate much time for their

herbarium curator to create local field guides which might benefit local communities, because no one will fund their printing; lack of reference materials in local even departmental libraries is also a problem.

Even when guides have been made electronically, it is particularly complicated if not impossible for Ghanaian technicians or academics to arrange for a book to be printed with good colour quality, and cheaply enough.

*18. What changes are needed to remove/reduce these barriers to adoption? This section could be used to identify perceived capacity related issues (max 200 words).*

We promote the development of national botanical institutions to help support the other institutions that will be involved in production of local field guides and “user friendly botany” enterprises (like posters, card games). Botany requires ongoing links between herbaria and other institutions globally, e.g. exchange of specimens and ideas, and there is need for more support for this.

More funding is needed from global development or biodiversity agencies specifically to fund printing of field guides or, better than this, a facility possibly in Europe funded to support African livelihoods and biodiversity, that will print and help publish field guides, especially those that have been made locally in Africa. The actual printing may take place in Asia, with the Guide Printing Agency positioned to help mediate.

Assistance with production of PDFs of simple guides and other guidance could then be designed to make most of this facility by e.g. the VFH tailoring its outputs to the requirements of that printing agency.

The VFH in Oxford seeks to position itself as an image exchange, or clearing house for mostly free images of living plants, as a means to catalyse such regional centres into guide production. African institutions need support to make more use of this e.g. with better internet links in African herbaria, and various items of basic hardware like digital cameras, good printers and printer consumables.

*19. What lessons have you learnt about the best ways to get the outputs used by the largest number of poor people? (max 300 words).*

We have not much experience with this yet with respect to actual field guides nor with the *Plant Identification* manual to field guide production (see above, starting in 2007). However, in general we have discovered that colour photo guides with few words are the key to adoption and to improving skills in plant identification up to about 50-80% accuracy (of rain forest species in a typical forest, depending on the forest type). Beyond this, for greater accuracy with difficult plant groups there is a need for more subtle guide material; local training by skilled botanists in its use; and above all, willingness by and time available for poor people to learn these rarer species. This time is more likely to be available where a livelihood can benefit because of the greater expertise.

---

## Impacts On Poverty

### *E. Impacts on poverty to date*



20. *Where have impact studies on poverty in relation to this output or cluster of outputs taken place? This should include any formal poverty impact studies (and it is appreciated that these will not be commonplace) and any less formal studies including any poverty mapping-type or monitoring work which allow for some analysis on impact on poverty to be made. Details of any cost-benefit analyses may also be detailed at this point. Please list studies here.*

Nowhere. None that I know of. (One project output for Grenada - the book 'Caribbean Spice Island Plants' - is the only output potentially old enough, at 1 year in the public domain in Grenada, to be assessed. However, I am not aware of any formal study linked to this due partly to preoccupation of the island with post-hurricane restoration).

21. *Based on the evidence in the studies listed above, for each country detail how the poor have benefited from the application and/or adoption of the output(s) (max. 500 words):*

- *What positive impacts on livelihoods have been recorded and over what time period have these impacts been observed? These impacts should be recorded against the capital assets (human, social, natural, physical and, financial) of the livelihoods framework;*
- *For whom i.e. which type of person (gender, poverty group (see glossary for definitions) has there been a positive impact;*
- *Indicate the number of people who have realised a positive impact on their livelihood;*
- *Using whatever appropriate indicator was used detail what was the average percentage increase recorded*

N/A (see 20)

---

## Environmental Impact

### H. Environmental impact

24. *What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? (max 300 words)*

*This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.*

Better knowledge of species names is vital to wise management of biodiversity (all plant species are not the same from an environmental point of view, even when they look very similar) and can only increase the likelihood of sustainable use.

Greater field guide availability and usability will improve the quality of inventories, including permanent sample plots, which can be used to plan sustainable production systems and provide information on conservation critical areas and species of greater or lesser value for minimising soil erosion or sequestration of Carbon. Food plants for rare animals can be identified and protected from unnecessary destruction.

Any sustainable management plan in biodiverse regions, therefore, should have good, and locally usable identification guides at their core.

*25. Are there any adverse environmental impacts related to the output(s) and their outcome(s)? (max 100 words)*

A possible dangerous impact would be increased ability to identify and overexploit very rare species (e.g. orchids for illegal trade). It would be the responsibility of the supporting agencies to work out and help local communities guard against this in their designs for good guides.

*26. Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? (max 200 words)*

Yes (See 25) although usually it will be a collaboration between the poor and core agencies, in schemes that involve the project outputs, that will provide e.g. climate and other environmental benefits: but climatic stability is likely to be more crucial to the poorer than the richer.

---