

**PROCEEDINGS OF THE FIRST WORKSHOP ON THE
“FOREST INVASIVE SPECIES NETWORK FOR AFRICA (FISNA)”
HELD ON 29 AUGUST 2005 AT THE ICE CONFERENCE HALL,
SOKOINE UNIVERSITY OF AGRICULTURE (SUA),
MOROGORO, TANZANIA**

**Organized by the FISNA Secretariat and Forestry Research Institute of Malawi (FRIM)
in collaboration with Sokoine University of Agriculture (SUA), Tanzania**

**Sponsored by the USDA Forest Service
with technical support from FAO**

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We extend our thanks to the Sokoine University of Agriculture, the Forestry Research Institute of Malawi and the entire workshop Organizing Committee for a job well done.

SUMMARY

The importance of alien forest invasive species in Africa was emphasized in August 2004 at an International Union of Forest Research Organizations (IUFRO) meeting in Kumasi, Ghana, where the formation of an active African network on forest invasive species was visualized and proposed. A meeting to launch the Forest Invasive Species Network for Africa (FISNA) took place in Malawi in December 2004. After the launch, the first FISNA workshop was organized at the Sokoine University of Agriculture (SUA) in Tanzania from 29th to 30th August 2005. The meeting was organized by the FISNA Secretariat, the Forestry Research Institute of Malawi (FRIM) in collaboration with SUA with financial support from the United States Department of Agriculture- Forest Services (USDA-FS) and technical support from the Food and Agriculture Organization of the United Nations (FAO). Attending the meeting were FISNA interim executive committee members from Ethiopia, Ghana, Kenya, Malawi, South Africa, Tanzania, Uganda, Zambia and Zimbabwe. Representatives from FAO (Rome) and CABI (Kenya) also participated in the workshop. Participants freely discussed and exchanged information on forest invasive species in the African region. Selected experts presented up-to-date information on specific forest invasive species and their management. Participants had the opportunity to learn more on international import and export regulations for live plants and International Standards for Phytosanitary Measures (ISPMs) which have a direct relevance to Africa. The workshop included field tours during which participants inspected sites in Tanzania which are infested by forest invasive species.

This document summarizes the major discussions that took place during the workshop. Papers that were presented during the workshop have not been included in the document as these will be posted on the FISNA Web site.

29 AUGUST 2005: OPENING SESSION - PROFESSOR SEIF MADOFFE, CHAIRMAN

1.0 WELCOME REMARKS - Professor Seif Madoffe (Sokoine University of Agriculture)

1.1 Prof Madoffe thanked participants for accepting to come amid busy schedules. On behalf of the organizing Committee, he welcomed distinguished participants and briefed the Guest of Honour that in spite of being asked to host the workshop at such short notice, the Organizing Committee managed to accommodate the event in SUA. He indicated that the presence of 25 participants in all, from Ethiopia, Ghana, Kenya, Malawi, South Africa, Uganda, Zambia, Zimbabwe and host Tanzania showed the seriousness and commitment attached to solving the problems due to forest invasive species. He specially recognized the presence of experts from FAO, Rome and CABI at the workshop, who had come to share information on invasive species so as to ensure that our environment is sustainably conserved.

1.2 OPENING SPEECH BY THE GUEST OF HONOUR (verbatim) - Professor Matovelo, Director of Research and Postgraduate Studies, SUA.

- The Coordinator of FISNA – Forest Invasive Species Network for Africa, Dr Clement Chilima
- Chairman of the Workshop, Professor Madoffe
- Forestry Officer (Forest protection and health), FAO, Dr. Gillian Allard
- Interim Executive Committee Members of FISNA
- Workshop participants
- Invited guests
- Ladies and gentlemen

It gives me great pleasure to serve as the Guest of Honour, to officiate the opening of this Forest Invasive Species Network for Africa (FISNA) Workshop, organized by SUA in collaboration with FISNA Secretariat based in Malawi, and funded and facilitated by USAID and FAO. I wish to express my deep appreciation to the organizers for according me this singular honour.

I have been informed that this workshop is attended by more than 20 participants from Ethiopia, Ghana, Kenya, Malawi, South Africa, Uganda, Zambia, Zimbabwe and the host Tanzania. Two international organizations are also represented and these are FAO and CABI.

Let me take this opportunity, on my own behalf and SUA's behalf to welcome you to Tanzania and Sokoine in particular. Sokoine University of Agriculture is situated at the foothills of Mountain Uluguru, which is part of the Eastern Arc Mountains, which incidentally are the water towers for Dar-es-Salaam and Morogoro. I hope you will find your two-day stay in Morogoro friendly and pleasant. Morogoro is also about 100 km to Mikumi National Park and perhaps some of you will have an opportunity, after the meeting, to tour this park and enjoy game viewing.

Dear workshop participants, I would like to thank you all and in particular those coming from outside Tanzania for having secured time to come, participate and contribute towards the African initiatives in managing and controlling forest invasive species. I know that your knowledge and experiences are very important for this meeting.

Mr. Chairman, I am informed that this workshop is co-sponsored by USAID and FAO. May I take this opportunity to express my sincere appreciation for their generous support.

I have also been made to understand that the two-day workshop will have both presentations and field visits and that in the second day participants will have an opportunity to see the problems of invasive species in one of our protected forests. I believe that these presentations and the field visits will also form the basis for the recommendations on how to deal with invasive species in Africa.

Dear participants, the current interest in alien invasive species in the environment owes a great deal to the inclusion of the subject in the convention of Biological Diversity where, in Article 8, parties to the Convention agree to “prevent the introduction of, eradicate or control those species which threaten species, habitats or ecosystems” (Convention of Biological Diversity, 1992). To be fair, most governments had, even at the time of ratification of the Convention, insufficient information on this problem to make Article 8 a priority in their biodiversity planning, but subsequent international meetings have raised greater awareness about invasive species, particularly the 1996 Norway - UN Conference on Alien Species at which representatives from 80 countries met with specialists in invasive species problems and began to work out the international scale and nature of the problem.

From this meeting a Global Invasive Species Programme (GISP) was initiated. One of the most lasting conclusions of this conference was the view that alien species are second only to habitat destruction as a threat to species loss and biodiversity. I am glad that the African countries through your Network and others have taken the issue of alien species seriously. Certainly as public interest in alien species affecting the environment grows, governments will be challenged to find mechanisms to respond and that is why I believe your governments permitted you to attend this meeting.

Dear workshop participants, it is from this background therefore that the current workshop on invasive species is being held. I am informed that the purpose of this regional workshop is:

- Bringing together a diverse set of regional professionals, who deal with invasive species, and linking them within the Network and providing contacts and information for all workshop participants;
- Raising participants’ awareness of the complexity of invasive species problems;
- Improving regional and national linkages;
- Discuss strategies to deal with current and future invasive species issues.

Progress in recognizing and mitigating the problems has been held back greatly by traditional thinking in terms of countries, sectors/disciplines and habitats. Perhaps I should remind you that:

- Invasive species do not recognize national boundaries, whether adjacent countries or halfway around the globe;
- Invasive species issues require cooperation amongst different stakeholders – agriculture, forestry and wildlife conservation agencies, etc.;
- Finally, the same species, for example, can be a pest of agriculture, forestry and wildlife so it is necessary to involve many stakeholders.

Mr Chairman, I am told that most of the invasive species were introduced in Africa in mid-sixties as a result of importing popular and fast growing European trees. Some of these species outgrew the indigenous species and some of them were introduced along with their pests which later became a serious problem due to lack of their natural enemies to check them. It is my hope therefore that the management of invasive aliens can be solved by both national and international efforts. Members of this workshop, in particular can therefore help by:

- Sharing experiences and collaborating on ideas for the development of programmes and methodologies in the control, prevention, monitoring and the management of invasive species;
- Developing recommendations on how best we can nationally and regionally manage the invasive alien species.

Dear workshop participants, I am however aware that there is lack of capacity for monitoring and controlling these invasives due to lack of appropriate infrastructure (trained personnel, facilities) and the lack of general awareness of the potential dangers of invasive species. The biggest challenge to you and other stakeholders is on how forest resources can be managed efficiently and sustainability with all these short falls?

African countries lacked effective mean to share information on forest invasive species despite increase in spread of pests across Africa. I am pleased to hear that you have a Web site, FISNA to facilitate the information flow. The sharing of information on similar experiences will help African forest health experts to quickly identify, understand and address problems related to invasive species in and beyond their region. Once this regional Web site is linked to other existing regional networks on invasive species, it will become much easier to protect African forests from species that transcend national and regional boundaries.

It is my hope that the information generated through this work will be useful in facilitating the workshop to come up with workable recommendations aimed at improving management and conservation of our forests.

Mr Chairman and workshop participants, with these remarks, I now have the pleasure to declare your workshop on “Forest Invasive Species Network for Africa” officially opened and I wish you a successful workshop.

THANK YOU VERY MUCH FOR LISTENING

2.0 SESSION ONE- DR GILLIAN ALLARD, CHAIRPERSON

In her introductory remarks, Dr Gillian Allard encouraged participants to be informal and highly interactive in deliberations, to discuss any other pertinent issues. She hoped that in the future, members will meet more regularly.

2.1 OVERVIEW AND OBJECTIVES OF THE WORKSHOP – Dr Clement Chilima

Dr Chilima presented a brief overview of FISNA and objectives of the current workshop. Among other aims, the workshop intended to help FISNA achieve the following Network objectives.

- To facilitate the exchange of information and provide a link for communication about forest invasive species.
- To alert and provide policy advice on transboundary movement, phytosanitary measures, and other relevant information.

In addition to these objectives, the workshop aimed to present and discuss the following Network issues:

- COFO meeting in March 2005 at which FISNA was introduced and from which it was decided to approach the USDA Forest Service to fund the workshop.
- Further interactions with the USDA Forest Service on funding focused on the need for the Network's interim executive committee to also discuss key invasive species, namely:
 - i. Giant conifer aphid (*Cinara pinivora*), mostly in Kenya and Malawi.
 - ii. Sirex wood wasp (*Sirex noctilio*), mainly in South Africa although could have spread in other regions of Africa.
 - iii. Blue gum chalcid (*Leptocybe invasa*), mainly in Uganda and Kenya and perhaps in Tanzania.
- International Standards for Phytosanitary Measures (ISPMs) Nos. 2, 11, 15 and 21.

2.2 SUMMARY OF PRESENTATIONS AND DISCUSSIONS

2.2.1 FISNA Secretariat - Dr C.Z. Chilima

- i) Dr Chilima presented a detailed report of FISNA and its activities since the last meeting in Malawi. He described the **COFO meeting** in March 2005 in Rome where he represented FISNA and informed world leaders in forestry of its existence and objectives. He also described the Southern African Development Community (**SADC Invasive Species Meeting**) which took place in Pretoria, South Africa where again he represented FISNA and informed SADC members on the Network's existence and activities. He then described the **FISNA Web site** and called on participants to continuously provide up-to-date information to keep the site "alive". Dr Chilima reminded the meeting that FISNA membership is open to all interested parties in Africa, south of the Sahara. He reported that recently, Ethiopia and Zimbabwe have joined the executive committee and that there are formal requests from other countries

such as French-speaking Seychelles and Botswana to join FISNA. Lack of finances, language differences and inability to host and manage the Web site by the Secretariat are the main challenges facing FISNA at the moment.

ii) On behalf of FAO, Dr Gillian Allard commended the enormous progress made by the Network through its Secretariat, citing the many activities that have been carried out in only 6 months. She acknowledged at the same time the role played by the previous coordinator (Mr Linus Mwangi) of FISNA who with no electronic mail system in place and no Internet, was able to coordinate the Network using the ordinary postal mail system. Dr Allard cited the inclusion of two member countries in the executive committee as a major achievement of the Secretariat. Commenting on the Web site, Dr Allard stated that FAO would continue to host and give support to the management of the Web site and would take care of the costs involved, provided Network members continued to provide necessary information. She indicated that hosting of the Web site by FAO involves minor editing. No peer review is done and the information is posted on the Web site as long as it is not also published and posted elsewhere. She reported that negotiations are underway for FAO to train the Secretariat in Malawi for the general management of the Web site, so that FRIM could possibly host and manage the Web site if it became necessary in future.

iii) Dr Allard described the press release after the COFO meeting which has generated great interest and a lot of new contacts to the extent that other networks now know that FISNA exists. She mentioned that other networks, such as the Asia-Pacific Forest Invasive Species Network (APFISN), do not yet have Web sites though they have been in existence for sometime, and yet FISNA has been functional for only 6 months and it already has a Web site, which shows the commitment and seriousness of its members.

The issue of integration/membership into the Network of non-English speaking African members was discussed at length. It was noted that some of them can converse very well in English and that the Network might only need to request the assistance of FAO for translation for the few that cannot converse in English. It was proposed that FISNA should include in its Executive Committee, members from all the regions of Africa (Eastern, Western, Northern and Southern), and these should help with translation. The Secretariat was requested to pick up speed in soliciting such block membership (**Action Point - Secretariat**).

iv) The meeting agreed that to ensure sustainability of the Network, strategies for financing should be put in place. This would include conducting some field projects and research work to raise funds, among others. The current initiative by the Secretariat to source funds from USAID through FAO for the workshop was cited as a clear demonstration of the beginning of self-sustenance by the Network. At this point, it was reiterated that FAO would continue to give technical support to FISNA although financial support is more complicated. Dr Allard promised to continue to seek support from various donor organizations, provided there is indication of great interest from members to sell the Network and find ways to self-sustenance.

- v) The workshop addressed the challenge of how to foster linkages with the SADC Secretariat, USDA Forest Service and other relevant organizations in support of FISNA. It was noted that useful contacts were already made at the COFO meeting and that international organizations such as the USDA Forest Service would be willing to support the Network and its meetings. The meeting recommended that the Secretariat should approach the SADC Secretariat and African Forest Research Network (AFORNET) to develop formal linkages (**Action Point**). It was proposed that AFORNET should be requested to support some of FISNA activities by diverting to FISNA Secretariat, small percentages of all funds that it provides for ecological research studies in Africa.

2.2.2 Zimbabwe – Mr Member Mushongahande

- i) The major forest invasive species listed for Zimbabwe included insects, diseases and tree/shrubs. It was reported that in Zimbabwe, conifer aphids have generally been kept under control by biological control agents and insecticides and that the wood industry and border post personnel play a major role in monitoring, reporting and managing forest invasive species outbreaks.
- ii) It was interesting to the members to learn of the unique participation of the wood industry in forest pest management activities. It was recommended that other countries should learn from Zimbabwe and emulate this in their countries (**Action Point**).
- iii) Black wattle (*Acacia mearnsii*), which was mentioned as one of the invasive species in Zimbabwe, raised interest. Other countries such as Malawi, South Africa, Tanzania, and Uganda also reported this species as invasive. After a lengthy discussion on this species, it was concluded that black wattle has both positive and negative attributes, the magnitude of which depend on how it is managed and utilized. It was learned for example that in Uganda and South Africa, black wattle is under some degree of containment and generally is considered a useful tree although there are some major challenges. In other countries where black wattle is not properly managed, the species is reported to be invading natural forests, overriding indigenous species and posing serious negative environmental impacts. The meeting agreed that all the countries that have reported black wattle should prepare a brief write-up of their experiences for the Web site (**Action Point**).

2.2.3 Zambia – Mr Obote Shakacite and Ms Judith Vinya

- i) The key invasive species reported in Zambia included water weeds, eucalyptus beetles, conifer aphids and pests of agroforestry.
- ii) In discussing the Zambia presentation, the meeting noted the importance of networks such as FISNA to bring together a multinational approach to the management of invasive species as the problems cannot be controlled in isolation. It was agreed that regional collaboration by linking FISNA with regional groups such as SADC should be aggressively pursued (**Action Point**).

- iii) The meeting acknowledged that *Lantana camara*, which was initially introduced into African countries with good intentions, has become invasive in Zambia and other African countries. The control methods used in Zambia of mechanical removal, cut and repeated burning and of allowing farmers to grow crops in recently harvested forests for at least one season were considered workable but the use of herbicides was not encouraged for fear of polluting waterways.
- iv) The manual removal of water hyacinth in Zambia was discussed. However, it was proposed that biological control should also be tried as this has worked very well in Kenya.
- v) The meeting agreed that while accepting that water weeds were also very important, FISNA should focus its discussions on terrestrial invasive species which are the main target of FISNA.

2.2.4 South Africa – Professor Jolanda Roux

- i) Prof. Roux briefly described the introduction of commercial forestry activities in South Africa over the past 200 years, during which some of the major forest invasive species were introduced inadvertently or intentionally to fulfil various purposes. Some of the major forest invasive species in South Africa include insects, pathogens and plants. South Africa has carried out many research activities on the management of forest invasive species in natural and planted forests but lack of trained staff at the harbours and other entry points and poor ability to recognize invasive species at these ports remain the major challenges.
- ii) The importance of international regulations such as ISPM No. 15 which includes guidelines for regulating wood packaging material in international trade was appreciated during the discussions of the presentation.
- iii) It was learned that *Dothistroma pini*, a pest restricted to *Pinus radiata* which is an offsite tree species in South Africa, is no longer a significant pest.

2.2.5 Tanzania – Professor Seif Madoffe

- i) Prof. Madoffe introduced a list of key forest invasive species in Tanzania, which included trees, insects and pathogens. The former is threatening indigenous forests especially the catchment forests while the later are threats in plantation forests. The major challenges faced in Tanzania are inadequate monitoring and pest control activities. FAO and other organisations were requested to support these activities.
- ii) The mention of *Maesopsis eminii* as an invasive species in Tanzania raised some interest as the same species is regarded as a fast growing and reliable source of timber and useful for enrichment planting in Uganda. Prof Madoffe emphasised that in Tanzania, the species is regarded as an invasive species because it has gradually invaded nature reserves where it is displacing native species. The meeting concluded that whether a species should be classified as an invasive species or not depends on its management objectives and its ecological impact. It was recommended that the

FISNA definition of invasiveness should be used to determine whether a species should be called an invasive species or not. *Cedrela odorata* was also mentioned during the field trip however, no conclusions concerning this species were made.

- iii) In Tanzania, leucaena psyllid and pine woolly aphid have generally been kept under control by biological control agents. Cypress aphid is still a threat to cypress.

2.2.6 Ethiopia – Dr Refera Alemayehu

- i) Dr Refera Alemayehu presented some of the major forest invasive species in Ethiopia citing cypress aphids and scale insects as the key ones. Lack of taxonomic expertise and services is one of the main limitations in managing invasive species in Ethiopia.

2.2.7 Uganda – Dr Epila-Otara and Mr Peter Kiwuso

- i) Dr Epila-Otara expressed regrets and apologies for failing to host the meeting in Uganda as previously planned. This was due to problems of communication in Uganda. He thanked Tanzania for accepting to host the workshop at short notice.
- ii) Among the major forest invasive species in Uganda are the blue gum chalcid (*Leptocybe invasa*), *Cinara cupressivora*, *Gonipterus scutellatus*, *Lantana camara*, and leucaena psyllid.
- iii) A countrywide survey of the distribution and infestation levels of the blue gum chalcid and other invasive species in Uganda was described. The major objective of the survey is to determine the distribution, damage levels, population dynamics over seasons, host resistance, natural enemies and the way forward on invasive species.
- iv) It was noted that lack of assessment protocols and financial limitations are the major challenges faced in Uganda.

2.2.8 Kenya - Messrs Linus Mwangi and Eston Mutitu

- i) Conifer aphids, Leucaena psyllid, *Dothistroma pini*, *Prosopis juliflora*, blue gum chalcid and black wattle were listed as the major forest invasive species encountered in Kenya. Some of these species, such as leucaena psyllid and pine woolly aphids, are currently under control by biological control agents and a major project is currently underway to manage *Prosopis juliflora*.
- ii) The meeting noted that *Prosopis juliflora*, which was introduced in the 1980s for firewood in dry areas, is having serious regional impacts in Africa and has been reported in many countries including Kenya, Malawi, Tanzania, and Uganda.
- iii) The multiple uses of *Prosopis juliflora*, including for timber, charcoal, and for making floor tiles, were appreciated and there was suggestion that increased utilization coupled with silvicultural practices could contribute to control of the species.

- iv) The meeting appreciated that there are conflicts of interest on *Prosopis* and black wattle in Kenya and surrounding countries where the species are widely used for fuelwood and other uses while they have become invasive in some areas.

2.2.9 Ghana - Dr Paul Bosu

- i) A list of forest invasive species in Ghana was presented. These were mostly exotic and native pests of teak (*Tectona grandis*), which constitutes almost 90 percent of planted forest tree species in Ghana. It was learned that the major challenge facing Ghana is how to encourage relevant people including farmers to assist in monitoring and reporting invasive species problems. It was proposed that perhaps the Forestry Commission in Ghana should seek funding to set up such a system.
- ii) The meeting noted that a lot of work has been done in Ghana on invasive species affecting teak over the past 40 years. It was also noted that, as experienced in Tanzania, invasive species problem can occur for a long time but pass unreported particularly if they occur on farms and in inaccessible areas.
- iii) Fears were aired that the teak pest problems previously common in Zimbabwe might resurface again.
- iv) The meeting noted that some of the pest problems reported in West Africa could be due to the monocultural practices there. It was proposed that mixing tree species with crops for the first 3 years could reduce pest incidences.

2.2.10 Malawi and SADC Report– Dr C. Z. Chilima

- i) Forest invasive species in Malawi are mostly associated with plantation species and most of them are exotic. The species listed in the presentation included conifer aphids, insect pests of eucalyptus trees and invasive plants such as *Prosopis juliflora*.
- ii) The meeting was informed that a SADC regional biodiversity information system, which will include a database of forest invasive species in Malawi, is being put together through the SADC Secretariat and this will be made available to FISNA when completed.
- iii) Weakness in the laws and policies on invasive species and their management was recognized from the presentation and discussion that followed. While recognizing that limited regulations/rules exist in some countries, like Malawi, it was noted that these are not clear and are not specific to forest invasive species; further their enforcement is often poor. The need to influence governments to include strong and enforceable laws in their policy documents was emphasized and this was recognized as a major challenge in most member countries. Members realized that to influence politicians, there is a need to continuously update them with information. It was proposed that a GEF project proposal be prepared that would enable members to improve the institutional framework on invasive species in Africa and increase the capacity of members to sensitize policy-makers (**Action Point**).

- iv) It was noted that a number of first reports of alien forest invasive species in Africa have been done in Malawi. Questions were being raised as to whether this was a reflection of phytosanitary control weaknesses in Malawi or efficiency in detecting new pests. In discussing this matter, members were asked to provide brief descriptions of the forest insect detection and monitoring systems in their countries. Brief reports were provided from Tanzania, South Africa, Ethiopia, Zambia, Kenya, Ghana, Uganda and Zimbabwe. It was observed that in general different systems are used in the various countries and the countries face limitations of transport, training and operational funds. The involvement of industries in Zimbabwe and South Africa was unique and appreciated.
- v) The need to use light traps in monitoring forest insect invasions was recognized, but it was noted that expensive traps are not suitable for the African forest environment in general, due to thefts, vandalism and high maintenance costs.

2.2.11 CABI – Dr Walter Ogotu

- i) Dr Walter Ogotu informed the meeting that CABI is a co-founder of the Global Invasive Species Programme (GISP). He also mentioned that CABI together with the World Conservation Union (IUCN) and the Kenya Plant Health Inspectorate Services (KEPHIS) conducted an IAS management workshop for key professionals in the environment, agriculture, forestry and phytosanitary services from East and Southern African countries in 2004. The main objectives of the workshop were to derive lessons from IAS training delivery in relation to local needs and to provide recommendations for the revision of the generic training modules developed by GISP. CABI is also involved in a GEF project entitled “Removing barriers to invasive plant management in Africa” in Ethiopia, Ghana, Uganda and Zambia. CABI’s other activities on invasive species included generating and disseminating information, control and eradication, developing and updating crop protection compendium annually, mobilizing of local communities and networking with relevant organizations and networks.
- ii) Members appreciated the encouraging support given by CABI to FISNA. A request was made for further support, especially in putting together information for the Web site.
- iii) The role that CABI can play in putting together and publicizing information was discussed at length. It was noted that while a lot of information can be obtained through interacting with local communities and farmers in the field, the capacity of the field staff to pass reliable information to CABI is often a limitation as they are not properly trained. Potential problems with property rights were also highlighted.

3.0 DISCUSSION ON TECHNICAL REPORTS

3.1 THE BIOLOGY AND CONTROL OPTIONS FOR *SIREX NOCTILIO* - Prof. Jolanda Roux (FABI) (Main report to be posted on the FISNA Web site)

- i) There were fears that *Sirex noctilio* might soon spread from South Africa to Malawi, Tanzania, Kenya and other countries within the region, especially since environmental conditions such as temperature are not restrictive. It was suggested therefore that these countries should be on the alert and set-up monitoring schemes for this pest, although it is difficult if there is no support for monitoring (**Action Point**).
- ii) Members wanted to know how *Sirex* spread from Australia to South Africa. Prof. Roux referred the members to a study on *Sirex* carried out by an Australian in the 1970s at Imperial College, London which suggested that the pest spreads by ships through untreated packaging materials.
- iii) It was learned that the major predisposing factor for *Sirex* attack is tree stress, for example, after plantation fires, drought, etc.

3.2 THE BIOLOGY AND POSSIBLE MANAGEMENT OPTIONS OF BLUE GUM CHALCID (*LEPTOCYBE INVASA*) - Eston K. Mutitu (Main report to be posted on FISNA Web site)

- i) The meeting was informed that the blue gum chalcid is a recently introduced invasive pest of eucalyptus trees which are commonly planted in Kenya for fuelwood. He introduced and described some possible management options which included: a) quarantine measures by restricting movement of infested plants; b) institution of pest alert systems; c) cultural practices such as cutting back infested seedlings; d) breeding for natural resistance; and e) classical biological control using imported natural control agents. Each of the above options was described citing experiences in Kenya.
- ii) The collaboration between Kenya and Israel on the chalcid problem was commended. Members recommended that the results, protocols and methodologies from this collaboration should be shared with others in the region to avoid unnecessary duplications.
 - The issue of emphasizing the use of only one eucalyptus clone, e.g. DC510, in Ethiopia was raised in light of the blue gum chalcid infestation. It was proposed that there is a need to determine if there are clones more resistant to infestation.
 - Prescription on quarantine would involve working populations up to damaging levels and work with farmers in implementing quarantine measures. This would also involve releasing pest alerts before implementing the measures. An example was given of a case in Kisumu where an alarm was raised after a long time, which created a weakness in the implementation of the control measures.
 - Experiment with bioassays as a feasibility study in Maseno insectary, where seeds are collected and sown in a tree nursery and together with clonal material are transferred under protective cover to Maseno before being exposing to

infestation. Other infestations are released in the nursery. Counts are then made on each tree and data generated is analysed. This is not done on clones as clones are not available but with AFORNET funding, this will be possible.

- The work with Israel is opening up new ground, particularly as there are two gall-forming pests and it is difficult to differentiate between them depending on whether it deposits on the upper side or the top side of the leaf.

3.3 BLUE GUM CHALCID IN TANZANIA, FIELD SITUATION AND DESCRIPTION OF FIELD VISIT - Professor Seif Madoffe (SUA)

Professor Madoffe described the infestation of bluegum trees by *L. invasa* in Tanzania and introduced the field trip which was to take place later. Similarly field visit to see *Cedreia mexicana* damage was also introduced.

3.4 INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC) PRESENTATIONS INCLUDING PEST RISK ANALYSIS AND ISPM NO. 15 - Gillian Allard (FAO) (Full document to be posted on the FISNA Web site)

Dr Allard provided details of the IPPC and ISPM no 15.

4.0 OTHER BUSINESS AND THE WAY FORWARD

- 4.1 IUFRO AND OTHER SUPPORT OPPORTUNITIES FOR FISNA MEETINGS:** IUFRO's interest in monitoring and training, after Asia, is next targeted at Africa. FISNA is therefore encouraged to continue as there are other organizations that are willing to support and organize funding for similar events. For example, USDA-CDR through Israel has programmes to assist Southern African countries. The option for 2006 for FISNA should be to approach IUFRO to organize the next meeting. Professor Jolanda Roux was requested to find more information on this through the Working Party of IUFRO and give feedback to FISNA.
- 4.2 POOR PHYTOSANITARY SYSTEMS IN THE SADC REGION:** The need to improve the coordination and operation of phytosanitary systems in the SADC region was recognized but it was acknowledged that lack of awareness and trained personnel are major limitations. The meeting proposed that lack of awareness should be seriously addressed by the SADC Secretariat and FISNA. FISNA should be brought to the attention of the Council of Ministers within SADC as this would open up new avenues of coordination and collaboration.
- 4.3 FISNA WEB SITE MANAGEMENT:** The management of FISNA Web site must be supported and it was proposed that FAO's African Forestry and Wildlife Commission (AFWC) should be approached to assist in this regard. The meeting proposed that as a start, minutes of the first meeting and proceedings of the workshop should be sent to Dr P. Kone of the Commission. Dr Allard promised to contact and request Mr Magnus Grylle of FAO to provide on-the-job training for members of the Secretariat and others on the management of the Web site, as part of a sustainability strategy.
- 4.4 KEY INVASIVE SPECIES OF REGIONAL INTEREST:** The top four invasive forest species of current regional interest are *Leptocybe invasa*, *Prosopis* spp, *Acacia mearnsii* and *Cinara pinivora*. Reports on these were proposed as follows:
- a) *Leptocybe invasa* – in Uganda, Kenya, Tanzania (Leader Eston Mutitu)
 - b) *Prosopis* – in Kenya, Ethiopia (Leader Alemayehu Refera)
 - c) *Acacia mearnsii* – in South Africa, Malawi, Zimbabwe, Tanzania, Kenya (Leader Jolanda Roux)
 - d) *Cinara pinivora* – in Kenya, Malawi, Ethiopia (Leader Clement Chilima)
- 4.5 FISNA MEMBERSHIP:** Membership of FISNA should take into account all aspects of the impacts of invasive species, so that membership should not be limited to biologists. Each member of the Executive Committee should act as country coordinator whose activities should include advertising FISNA within his/her country and region in order to get more countries and individuals to "join" FISNA. Membership should be open to all, not just to the interim Executive Committee that met at Morogoro. Dr Paul Bosu will coordinate and link up with other West African countries.

- 4.6 IPPC:** Each participant should talk to their country National Plant Protection Officers (NPPOs) to get involved in quarantine issues and advise them on forest plant protection matters. This should involve personal contacts. FISNA should formulate a standard letter that can be used by each participant to approach the NPPO's and higher up. CABI offered to assist with training in IPPC regulations and issues.
- 4.7 TAXONOMY:** FISNA should identify institutes and experts in the African region to whom samples can be sent for identification in order to cut down on high costs of identification overseas.
- 4.8 INVASIVE SPECIES MONITORING AND TRAINING OF MONITORS:** FISNA members should draft and share protocols for monitoring of specific invasive species. These protocols should be placed on the FISNA Web site. An IUFRO/FISNA forest invasive species monitoring training course should be proposed where some of the FISNA committee members can become trainers. Universities, private companies and other institutions other than just government should be approached to assist with funding and implementation of invasive species monitoring activities. There should be a model developed for monitoring which can then be adapted for specific cases and countries.
- 4.9 FUTURE FUNDING:** AFORNET should be contacted for joint meetings and support on forest invasive species management activities. Realizing that AFORNET only provides funding for research-related activities, FISNA should approach management of AFORNET and find out if waivers can be made where small proportion of funds for forest research could be set aside for forest networking. The FISNA Secretariat should actively seek funding for the next FISNA meeting. Each member should assist with this and find funds for FISNA meetings, such as by building these into project proposals.
- 4.10 WEB SITE MANAGEMENT:** FAO should be requested to assist with training of the Secretariat on Web site management with specific reference to the FISNA Web site. FISNA members should continuously populate the Web site with information. The now better-informed participants should form a core team fundamental to FISNA, that will further disseminate the forest invasive species information and knowledge regularly using the Network in the different countries in Africa.
- 4.11 KEY FOREST INVASIVE SPECIES:** See table 1.

TABLE 1: SPECIES THAT HAVE BEEN RECORDED AS MAJOR INVASIVES IN THE FISNA MEMBER COUNTRIES

Pest	Ethiopia	Ghana	Kenya	Malawi	Tanzania	South Africa	Zambia	Zimbabwe	Uganda
<i>Acacia mearnsii</i>			X	X	X	X			
<i>Acanthus</i> spp.					X				X
<i>Apate</i> spp.		X		X					
<i>Broussonetia papyrifera</i>		X							X
<i>Cedrella mexicana</i>					X				
<i>Chromoleanea</i> spp.		X				X			
<i>Cinara cupressivora</i>	X		X	X	X	X	X	X	X
<i>Eucalyptus psyllid</i>	X		X		X	X			
<i>Fusarium circinatum</i>						X			
<i>Gonipterus scutellatus</i>			X			X	X	X	X
<i>Lantana camara</i>			X	X	X	X			X
Flamboyant leaf hopper				X					
<i>Leucaena psyllid</i>	X		X	X	X				X
<i>Maesopsis eminii</i>					X				
<i>Pineus boernerii</i>	X		X	X	X	X	X	X	X
<i>Pissodes nemorensis</i>						X			
<i>Prosopis</i> spp.	X			X		X			
<i>Senna spectabilis</i>									X
<i>Sirex noctilio</i>						X			
<i>Phorocantha</i> spp.	X		X	X	X	X	X	X	
<i>Cinara pinivora</i>	X		X	X	X				
<i>Rubus ellipticus</i>				X					
<i>Pinus patula</i>				X		X			
<i>Leptocybe invasa</i>	X		X		X				X

ANNEX 1 - PROVISIONAL AGENDA

- 28 August:** Arrival of participants and travel by road from Dar es Salaam to Morogoro
- 29 August:** **Opening session**
morning Address by Professor Mmatovelo, Director Research and Postgraduate Studies, SUA
Objectives of workshop
Secretariat and country reports
Secretariat report by FRIM
Country comments
Summary of SADC Invasive Species Meeting, Pretoria, 23-26 August 2005
- afternoon* **Technical sessions**
Sirex spp., biology and control options
Jolanda Roux (FABI)
Blue gum chalcid in Kenya, biology and control options
Eston Mutitu (KEFRI)
Blue gum chalcid in Tanzania, field situation and description of field visit
Seif Madoffe (SUA)
Other pest problems
IPPC presentations including pest risk analysis and ISPM no. 15
Gillian Allard (FAO)
Other business and the way forward
- 30 August:** **Field visit**

ANNEX 2 - LIST OF PARTICIPANTS

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