mentation on possibilities to control invasive alien plant species and environmental weeds.

The EWRS Working Group Invasive Plants will develop an international and interdisciplinary platform dedicated to monitor, study, warn and advise on the management of invasive plant species in Europe. This mission will be achieved through the integration of existing and/or execution of especially designed research taking into account agronomic, environmental, health and economic aspects of plant invasion.

Main Topics of the Working group are:

Identifying key research and control technology needs and encouraging their execution, including collaborative programmes;

Organizing meetings, symposia and conferences, and including the topic in existing meetings;

Supporting communication and information exchange between agricultural and environmental researchers, between scientists and professionals, between individuals and organizations, between national and international organizations;

Encouraging and assisting education and training on invasive plants (control, horticultural and environmental aspects) for institutions, students, professionals (interdisciplinary) and general public.

There is no formal membership of this working group, rather it is an informal grouping of people interested in invasive plants and environmental weeds ? these constitute the members. Everyone is welcome to contribute to practical concerted research and to attend the working group meetings and other conferences. Apart from the web site (http://www.ewrs.org/IW/membership.asp), communication to the membership between meetings is via e-mail. This has been largely used to solicit opinion on the direction of the group, where and when meetings should be held, and to give advance details of meetings.

You do not have to be a member of the EWRS to participate in the working group, although EWRS members receive discounts to attend the working group meetings and in the past, post-graduate members have been able to apply for travel subsidies to these meetings. When you join the WG, you will eventually be encouraged to become a member of the EWRS. If you would like to join the Working Group please contact the coordinator Mr. Christian Bohren, e-mail: christian.Bohren@acw.admin.ch

225. ***Cyperus Esculentus*** **(Yellow Nutsedge) a New Invasive Weed to Irrigated Crops in Israel.** Tuvia Yaacoby[1]; [1]Ministry of Agriculture and Rural Development, Bet - Dagan, Israel

Invasive alien species (IAS) are considered among the most dangerous threats to biodiversity of native species as well as a major task for their control. International Ag-products trade and tourism increase the spread of invasive species, allowing them to overcome natural geographic barriers. The lack of effective regulatory rules on grain's import for food industry or animal feed leads to enormous burden on crop management, as well as on other human enterprises and health. *Cyperus esculentus* (yellow nutsedge), is one of the most aggressive perennial noxious weed throughout the world. *C. esculentus* was recently found in the northern Negev, a semi arid part of the country, and a major vegetables growing area. The introduction of *C. esculentus* to Israel occurred several years ago, probably via import of grains for oil production or for animal feed from USA. The most troublesome weed in summer crops of Israel is purple nutsedge (*C. rotundus*) a native to the Mediterranean, Irano-Turanian and Tropical region, that under the local conditions propagates vegetatively only. The ability to re-propagate by underground tubers only, limits its dissemination without the use of agro-machinery equipments. Unlike purple nutsedge, yellow nutsedge found in Israel produces tubers and seeds, allows this invader to spread very fast from infested area to its neighbor fields. The intensive farming methods in these farms, along with the limited number of selective herbicides in such crops resulted in a very high infestation that eliminated certain cash crops from the area. Hence, yellow nutsedge infestation caused a shift from late winter to early spring crops such as cabbage, onion, fennel and radish to arable crops such maize, wheat or watermelons where the weed could be controlled. In order to allow farmers to use the land for high-income crops, the Plant Protection and Inspection Services (PPIS), Ministry of Agriculture, initiated an eradication program by encouraging farmers to control the weed in these arable crops for 3 to 5 years. The farmers will be compensated for the income losses and to cover for the more effective chemicals.. The program is planned to reach continuous and efficient control of *C. esculentus* and to prevent its establishment in other fields.

226. ***Heracleum sosnowskyi*** **Manden - the Invasive Alien Species in Poland.** Krystyna Miklaszewska[1]; [1]Institute of Plant Protection, Poznań, Wielkopolskie, Poland

*Heracleum sosnowskyi* was introduced to Poland as a cultivated plant in the year 1958. It was promoted as a cultivated fodder and a nectar plant.

This project was abandoned in a very short time (the flavour of meat and milk from the animals to which it was fed were affected).

From that time on the *Heracleum sosnowskyi* is out of human control and has spread across unmanaged land areas and near ditches. It is a very expansive species which invaded weedy places, road margins and natural plant communities as well.

*Heracleum sosnowskyi* is causing to a reduction in local plant biodiversity. It is also very dangerous for humans and causes skin and mucous membrane burns, particularly

dangerous for children. The plant exudes a clear watery sap, which contains several photosensitizing furanocoumarins. In contact with human skin and with combination with ultraviolet radiation, these compounds cause burnings of the skin. The phototoxic reaction can be activated by ultraviolet radiation 15 minutes after contact. Several furanocoumarins have also been reported to be carcinogenic.

*Heracleum sosnowskyi* Manden. for the first time was described by Mandenova in 1944.

They grow up to 4-5 m tall. Stems are usually 5-10 cm in diameter and are often purple spotted or continuously purple. Leaves of mature plants are divided to a varying extent into three approximately equal parts. Leaves can grow up 3 m in length. More than 80.000 flowers can occur on a single plant. In central Europe plants flower from June to end of July and seeds are released from late August to October. One plant bear about 20.000 seeds, but individual plants with over 100.000 seeds have been reported. The reproductive potential of the plant is enormous.

Several main modes of seed dispersal are known. Some are human assisted and some are natural.

*Heracleum sosnowskyi* can reach high densities in abandoned grasslands and ruderal habitats, leading to a strong decline in the species richness of these habitats.

To prevent high *H.sosnowskyi* infestation, the combination of control methods (mechanical and chemical) can be more efficient that using a single method.

227. **Management Concerns Regarding Old World Climbing Fern (*Lygodium microphyllum*).** Jeffrey Hutchinson[1], Kenneth Langeland[1]; [1]University of Florida, Gainesville, Floirda, United States of America

Old World climbing fern (OWCF; *Lygodium microphyllum* {Cav.} R. Br.) has been documented in Florida for $< 50$ years, but is considered one of the most highly invasive plants in natural areas. OWCF has spread rapidly across the south Florida landscape due to wind-blown spores invading mesic and hydric wetlands, including the Florida Everglades. Current coverage of the fern is $>$ 48,000 ha and the fern is spreading north into central Florida. Control of OWCF is expensive and labor intensive as the fern often occurs in isolated areas only accessible by helicopter. Management of the fern is difficult and control of OWCF can only be obtained with frequent monitoring and repeated herbicide treatment. We found that translocation of glyphosate, metsulfuron methyl, and triclopyr in OWCF is limited with no translocation horizontally along rhizomes, explaining why managers often report re-growth several months following herbicide treatment of OWCF. Based on greenhouse studies, we found that OWCF can produce $>$ 800 rachis sprouts from a single plant and $>$ 4400 new sporophytes per $m^2$. Growth rates from re-sprouts on rhizomes and new sporophytes can be 3.8 and 1.9 m / year, respectively, under greenhouse conditions. The development of fertile leaflets begins at 3-4 months and spores can remain viable for at least seven years. Germination rates of OWCF can be as high as 96%. For effective management of OWCF, complete coverage with herbicide of all rachis sprouts and pinnae must be obtained. Due to the overlapping, indeterminate growth pattern of OWCF, complete control of large infestations of OWCF with one herbicide application is nearly impossible. Long-term monitoring and follow-up herbicide applications will be required in established populations of OWCF due limited herbicide translocation, re-sprouts from rhizomes, quick development of fertile leaflets, excessive spore production, high spore germination rates, high densities of new sporophytes, fast growth rates, and long spore viability.

228. **Control of *Lantana camara* in Grazed Pastures.** Jason Ferrell[1], Greg MacDonald[1], Brent Sellers[1]; [1]University of Florida, Gainesville, FL, United States of America

*Lantana camara* is a common weed in central Florida cattle pastures. Current literature on control of *Lantana camara* is contradictory or provides insufficient information to develop an effective control strategy. Therefore, an experiment was initiated in October 2006 to develop an effective control program for *Lantana camara* in warm season pasture production. Experiments were designed to address the impact of herbicide and application timing. Herbicide treatments included aminopyralid (0.1 kg/ha), fluroxypyr (0.5 kg/ha), aminopyralid & fluroxypyr (0.1 & 0.5 kg/ha). These herbicide treatments were applied either once (10/18/06) or twice (10/18/06 and 5/14/07) to determine the influence of repeat applications on *Lantana camara* control. These herbicides were applied broadcast at 280 l/ha to plants that were well established, approximately 130 cm in height, and actively blooming. Previous research conducted in Florida has shown that triclopyr-ester is ineffective on *Lantana camara* and was excluded from this study. Herbicides applied one time in October, regardless of treatment, did not exceed 20% control 1 year after application. *Lantana camara* in plots receiving fluroxypyr were completely defoliated within 1 month of application, but resprouting was common in all plots within 6 months of the application. Conversely, sequential applications of fluroxypyr and aminopyralid & fluroxypyr resulted in 80 and 95% control, respectively, at 6 months after the sequential application. Aminopyralid alone did not provide greater than 10% control with either single or sequential applications.

Another experiment was conducted to determine if basal treatments (herbicides applied in an oil carrier directed to the stem base) would be an effective individual plant treatment. Triclopyr-ester (Remedy Ultra 20% v/v), triclopyr-ester & fluroxypyr (Pasturegard 50% v/v), triclopyr-ester + aminopyralid (Remedy Ultra 20% +