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PRESIDENT'S MESSAGE

Dear IPPS members

I hope you are all well at the time you read this brand new Haustorium! With the many climatic, political and military disturbances all around the world, our physical and mental wellbeing can, unfortunately, not be taken for granted.

This is my first 'Message of the President' in Haustorium and I would like to seize this opportunity to thank my predecessor, Harro Bouwmeester, for the admirable work he did for the IPPS over the last 12 years, first as Member at large, then as Vice-President and then as President. During this time Harro organized the 15th WCPP in Amsterdam and he professionalized and vitalized the society in a number of ways. I think the most visible and remarkable achievements are the creation of a new and more interactive IPPS website (started under Julie Scholes' presidency) with, since recent months, an associated monthly electronic newsletter. Harro was also instrumental for setting up an IPPS twitter (X) account and for the establishment of a regular online IPPS seminar series. More behind the scenes Harro has contributed to a leaner admin (including a bank account!) and a higher visibility and proactiveness of the society, setting the example for the Executive Committee (EC) in general, and for me as his successor in particular. Thank you very much for all this Harro! I am happy that he has volunteered to stay on as EC member, in the role of editor. This makes the transition for me and the other EC members easier.

During our last General Assembly, in June, we have welcomed Airong Li, as new Vice-President, Muhammad Jamil as new Secretary and Thomas Spallek and Damaris Odeny as new Members at large. Luckily Renate Wesselingh stays on as Treasurer for some time longer. I am very pleased to see that our EC is as diverse as our society at large. Welcoming these new EC members also meant saying goodbye to departing ones. I would like to thank again Susann Wicke, who was our Editor, and Luiza Teixeira -Costa, and Pradeepa Bandaranayake as our previous Members at large for their invaluable contributions and the pleasant collaboration. We will surely miss them!

Also a word of thanks and appreciation to the IPPS Advisory Board (AB), consisting of Julie Scholes, Neelima Sinha, Koichi Yoneyama and Jim Westwood. The AB, initiated in 2022, advises the Society on matters of strategic importance and monitors the Society's finance. While the AB may not be very visible to 'ordinary' members, this has proven a very valuable 'group of wise(wo)men' that we as EC consult every now and then for important decisions or dilemmas. I hope we can continue to count on them in the coming years!

I think this would also be a good moment and platform to thank Chris Parker for his continued efforts to edit and publish Haustorium since its birth in 1978. It is truly remarkable that Chris is doing this for 46 years already. Thank you very much Chris! Perhaps good to reiterate that all 86 issues of Haustorium are available on the IPPS website. Society members can (and should) use this newsletter to share news and information with the wider community (in addition to the website), so please do send Chris or our Members at large, who support him, your contributions.
It is my sincere hope that during my presidency, the Society will continue to thrive, and continue to promote the natural wonders of parasitic plants and collaborations of society members researching them! As some of you may know already, this summer I moved back to the Netherlands after living and working abroad for exactly 20 years. I'm happy to inform you that I started a tenure at Wageningen University where I will continue my work on parasitic weeds.

Echoing Harro's last 'Message of the President' in the May issue of Haustorium, I would like to reiterate the importance and value of our website and to encourage members to continue to visit it and learn about news and vacancies on parasitic weed research but also to post their parasitic plant news and vacancies themselves. Examples of news items members can read or post are recent papers or project fundings.

In June we had the 17th World Congress on Parasitic Plants (WCPP) in Nara, Japan (see report in this issue). It was an extremely well organized and truly enjoyable conference and I would like to thank the conference lead-organizers, Satoko Yoshida, Atsushi Okazawa and Kaori Yoneyama and their colleagues for organizing and hosting such an amazing event. The biennial WCPP is of vital importance for the existence and cohesion of the IPPS and it is really great to realize that we always seem to find capable and enthusiastic volunteering IPPS members such as Satoko *et al.*, who are willing to organize one. Together with Gregório Ceccantini and Francisco Fontúrbel, we have slowly but surely started the preparations for the next (the 18th) WCPP in Brazil in 2026. We hope to announce the exact venue and dates soon.

In terms of other IPPS news, we will soon resume our monthly online parasitic plant seminars. I believe we still have vacancies for this, so if you would like to give a talk, please inform our vice-president Airong. We are also in the process of launching a more official and independent IPPS LinkedIn account, as the previous one was associated to my own personal account and this did not work well. Damaris will announce the new IPPS LinkedIn page soon.

For the current issue of Haustorium, the editor Chris Parker has again brought together a range of interesting parasitic plant news items. Highlights in this Haustorium are a report of the 17th WCPP in Nara, Japan, a range of recent stories relating to parasitic weeds and their researchers, also a comprehensive coverage of the last 6 month's literature.
I wish you all a good read and a good end of the year 2024 too!

Jonne Rodenburg, IPPS President

MEETING REPORT

17th World Congress on Parasitic Plants, Nara, Japan.

The 17th Congress took place in Nara, Japan, from 3-7 June, 2024. About 160 participants attended the meeting, which was superbly organised by a team led by Satoko Yoshida, chair of the local organizing committee (LOC; NAIST), Atsushi Okazawa (Vice chair; Osaka Metro. Univ) and Kaori Yoneyama (Vice chair, Scientific program subcommittee; Saitama Univ) with the support of the IPPS and the International Union of Forest Research Organizations (IUFRO). **There were 66 oral presentations and 55 posters.**

In her opening remarks, Satoko Yoshida underscored the urgent need to tackle parasitic plant challenges, from foundational research to applied solutions. In the first session on **Host-Plant Resistance** that was chaired by Charles Menlyk and Soyon Park, the keynote speaker, Damaris Odeny conveyed a sense of urgency to combat *Striga* menace in Africa with an emphasis on finger millet. Other host-plant resistance topics in the same session included mechanisms of resistance to *Phelipanche aegyptiaca* and *Cuscuta gronovii* in carrots; a better understanding of broomrape species in *Brassica juncea* and sunflower; gene expression and methylation profile in Arabidopsis in response to *Cuscuta campestris*; as well as the use of *Agrobacterium*-mediated transformation as a tool for understanding plant-plant interactions.

The second session on **Development and Physiology** was chaired by Ken Shirazu and Thomas Spallek with several presentations discussing signal transduction and receptors involved in haustorium formation using *Phtheirospermum japonicum* as a model. The keynote speaker, Dr. Michael Axtell gave a detailed overview on microRNAs that target host messenger RNAs in *Cuscuta* spp., giving way to two other presentations on different mechanisms involved in haustorium initiation in *Cuscuta campestris*. Other broad topics in this session included the avoidance of self-parasitism in Orobanchaceae and molecular mechanisms underlying seed conditioning in host-independent haustoriogenesis

The third session on **Genomics and Transcriptomics** that was facilitated by Kirsten Krause and Stephane Munos involved eight diverse presentations, the keynote of which was provided by Xiaoli Chen on the extensive and convergent gene loss in holoparasitic plants. Genomic variations within different families of parasitic plants were presented including in Convolvulaceae, Balanophoraceae and Orobanchaceae. Gene expression and transcriptome profiling was discussed for *Alectra vogelii* and *Cuscuta campestris* and metabolic evolution of a specialized lignan reported to be associated with intron rearrangements in dodders. An extensive analysis of the genetic diversity of the European races of *O. cumana* was also included in this session.

A keynote presentation by Yukihiro Sugimoto on the regulation of germination of parasitic plants opened the fourth session on **Molecules and Biochemistry,** which was chaired by Salim Al-Babili and Tadao Asami. Al-Babili dissected a key molecule that is determinant of strigolactone pattern in pearl millet - *S. hermonthica* interaction. There were two discussions centered around germination inhibitor OmAGAL2 in *Orobanche minor* and OcKAI2 as receptors of germination stimulants in *O. cumana*. Ceccatini and Betete reported the phenomenon of autoparasitism in *Cassytha filiformis* and *Struthanthus flexicaulis,* while Cignitas *et al.* demonstrated the potential for CRISPR/Cas technology for improving resistance of tomato to *Phelipanche* spp.

The fifth session on **Control and Management** was chaired by Evgenia Dor and Jonne Rodenburg. Muhammed Jamil's keynote provided updates on progress made towards the exploitation of suicidal germination in the management of *Striga* spp. Rodenburg *et al.* explored combinations of fertilizer and host resistance in the control of *S. hermonthica* in sorghum, while Dor *et al.* explored the potential of *Trichoderma* spp. for biological control of *Orobanche* and *Phelipanche* spp. Masteling *et al.* described the results from a 'PROMISE' project that had been exploring the potential for suppression of *Striga* germination by volatiles from naturally occurring soil microbes. Other topics in the same session included the use of cover crops to control broomrape in sunflower, the clustering of symptomatic pixels for targeted evaluations in carrots, and the current challenges in management strategies for *Orobanche crenata*.

The seventh session on **Parasitic Plant-Host-Microbe Interactions** was facilitated by Airong Li and Teixeira-Costa and kicked off with a keynote presentation by Jianquan Wu on MicroRNA399s. Other talks included *Striga* control by *Pseudomonas* species in Ethiopia, how parasites affect nutrient distribution using common mycorrhizal networks, evidence of how parasitic plants boost insectivore in Australian deserts, and the characterisation of polygalacturonases in the interaction of parasitic plants and phytopathogens.

Ecology, Evolution and Climate Change was the theme of the final session. The keynote was virtually presented by Charles Davis on the world's largest flowers. Other topics covered in included the role of plastids in parasitic plants biology, the global change effects on parasitic plants including the interactive effect of drought parasitic plants in natural habitat, host-specificity of mistletoes, as well as the genetic diversity and structure of Javanese Rafflesia. Luiza Teixeira-Costa's presentation discussed how global warming might alter parasitic plants' distribution and behavior. Her ecological models predicted that parasitic plants, especially those with high adaptability like *Cuscuta* and *Striga*, could expand into new regions or intensify in currently affected areas.

The congress was not just about science—it was also an opportunity to enjoy Japanese culture. A welcome mixer at

Café Etranger provided an informal setting to meet fellow researchers and exchange ideas, not to mention sample some of Japan's unique culinary offerings. One of the memorable cultural excursions was the 'Shikayose' deer-gathering event in Nara Park, which allowed participants to experience the revered deer of Nara up close, blending natural beauty with cultural significance. The gala dinner and the closing party at the IRAKA Garden featured traditional Japanese court music, Sake tasting, and tea ceremonies. The impact of WCPP2024 will undoubtedly be felt far beyond this single congress, as researchers continue to build on the knowledge and networks formed in Nara, working toward a world where the threats posed by parasitic plants can be managed and mitigated effectively.

The above is a distillation from a remarkable quantity and range of excellent new research yielding ever more detail of the interrelations of parasitic plants with their hosts, their morphology, physiology and genetics. No dramatic progress towards the control of the continuing economic problems from *Striga* and other root parasites, but persistent work on strigolactones, natural and synthetic, and the search for their possible commercial use for control. Also progress towards potential genetic and biological control methods.

Damaris Odeny.

IPPS WEBINARS 2024

'We plan to have our first seminar on January 8th, 2025, with an exciting new format. We will then continue with the familiar first Wednesday of the month schedule throughout the year.

The new format will feature a 25-minute talk from a Principal Investigator and a 15-minute presentation by an early career researcher, with plenty of additional time for questions and discussions.

If you're interested in giving a talk or would like more information, please contact secretary@parasiticplants.org. Stay tuned for more updates.'

IPPS

CONGRATULATIONS

Dr. Begoña Pérez Vich receives Pustovoit Award.

The prestigious Pustovoit Award from the International Sunflower Association has been awarded to Begoña Pérez Vich from the IAS-CSIC in Córdoba, Spain. Begoña Pérez Vich is well-known in our society for her work on resistance in sunflowers to the #parasiticplant *Orobanche cumana*.

IPPS 16 September 2024.

PROJECT

Africa: AUDA-NEPAD, AATF Forge Partnership to Propel Genome Editing.

To advance the utilization of genome editing as a pivotal tool in bolstering agricultural development across Africa, the African Union Development Agency- New Partnership for Africa's Development (AUDA-NEPAD) and the African Agricultural Technology Foundation (AATF) have signed a memorandum of understanding (MoU).

This strategic alliance seeks to drive progress in agriculture, combat climate change, alleviate poverty, and enhance food security by leveraging genome editing techniques to fortify crops against diseases and adapt them to changing environmental conditions. The partnership will facilitate the formulation and implementation of supportive policies, the creation of innovative agricultural products, capacity-building initiatives for institutions (both human and infrastructural), and the establishment of science-driven regulatory frameworks. These efforts aim to stimulate trade and investment opportunities in fifteen African Union member countries. Nardos Bekele-Thomas, CEO of AUDA-NEPAD, emphasized the significance of adopting a science-based approach to product development and regulation to foster innovation without impeding progress through unnecessary regulatory hurdles.
She highlighted the pivotal role of science-led industrialization in achieving inclusive growth and development within Africa, emphasizing the utilization of the continent's scientific knowledge in collaboration with industry stakeholders.

Dr. Canisius Kanangire, Executive Director of AATF, underscored the importance of enhancing public trust in agricultural research and biotechnology.'We now have the opportunity to increase awareness among citizens about the impact of genome editing, thereby generating demand for products developed through biotechnology, which will boost productivity, improve household incomes, and bolster food and nutrition security. This partnership will enhance trust and confidence between researchers and farmers, the main users of agricultural research outputs,' Dr. Kanangire pointed out.

A more important initiative within this collaboration is the *Striga* Smart Sorghum for Africa project, which aims to develop sorghum varieties resistant to the destructive weed, *Striga*. This initiative targets the improvement of sorghum production, safeguarding the livelihoods of millions of smallholder farmers across the continent from the adverse impacts of *Striga* infestation.Bellah Conte

Provided by SyndiGate Media Inc.

ARTICLES

Under the Mistletoe.

Field botanists in most of the Southern United States are familiar with the oak mistletoe *Phoradendron leucarpum* (there are a diversity of synonyms for scientific and common names)—or are they? Why is the biology of this iconic dioecious denizen hosted by a diversity of dicot angiosperm woody plants so little known? We asked some seasoned botanists in late December to tell us what native shrub was in full flower in mid-winter. Only one guessed it. Clearly the proverbial further research and education is needed hence this note to raise awareness of exciting studies in a forest near you.

We have been studying the oak mistletoe for several decades and are increasingly aware that there is much to learn. Because of the spherical habit of the shrubs, caused by its lack of geotropism, it is easy to discern and to observe that infections can be heavy on one tree while the adjacent tree of the same species and age has nary a mistletoe.

Knowing that fruits are dispersed by birds, we carried out an extensive study of winter distributions of fruit-eating bird species, finding seed dispersers to be much more widespread with regards to habitat than the mistletoe. Similarly, we found the distributions of commonly parasitized host tree species to be more widespread than the parasite. Thus, questions remain about variation in mistletoe abundance at both the individual tree and individual habitat patch scales. Evidence from a planting experiment suggests that variation in light availability could at least partially explain some distributional patterns through its effect on mistletoe establishment (Flanders *et al*. 2023).

Like any field study, numerous questions arose including floral biology. What pollinates the tiny flowers, among the smallest in our flora? Why winter flowering? A strong preference for– deciduous trees suggests wind pollination but mistletoe flowers do not have an anemophily floral syndrome. While some literature reports swarms of insects visiting the flowers, we have only occasionally seen insects on any flowers.

Most striking to us in our recent surveys is the way the mistletoe can affect tree architecture. Prominent only in the winter are 'witches' brooms' on red maple (*Acer rubrum*) and tupelo (*Nyssa* aquatica) as well as massive growths on the stems of tupelo. These are large infestations that produce adventitious stems from the original point of parasitism. They metastasize by sending green strands in the phloem that then grow sinkers into the wood, often along rays. This is essential since this mistletoe depends almost entirely on the xylem stream of the host.

Another question to consider is the role these parasites play in nutrient cycling as well as biotic interactions. The seed dispersal role of frugivorous birds is well-known but there are few data on other biota.

In the Southeast, oak mistletoe is the sole larval hostplant for the great purple hairstreak butterfly (*Atlides halesus*), yet apparent discrepancies between the abundance and distribution of these two taxa have not been examined to our knowledge.

Of course, any study seeking funding must implicate the role of global warming and mistletoe is a good research animal because the isotherms relative to its distribution have been determined. This is especially relevant for those of us in the northern part of the South.

There is so much to learn about this common easily harvested plant. No, you do not need a crane to be a mistletologist. Despite the misconception, it is possible to find hardy mistletoe shrubs within reach.

Cedar waxwing foraging on mistletoe fruits

Pistillate flowers showing the three sepals and dark stigmata.

We thank senior mistletologists Dan Nickrent and Chris Randle for their help and encouragement.

Reprinted from Chinquapin Newsletter of the Southern Appalachian Botanical Society 30(1) by permission.

Nicholas P. Flanders and Lytton John Musselman.

Macrosolen melintangensis new host is a narrow endemic Bornean rhododendron.

Standing 2278 m above sea level has made Mount Bukit Raya the highest summit in the Indonesian Borneo. Characterized by an isolated undulating plateau at an elevation above 1950 m., the mossy forest present in this area is separated by vertical cliffs from the surrounding montane forest. In this area, a plant species named *Rhododendron fortunans* from the heather plant family is the most popular for its mesmerizing flowers and the fact that this species only grows on the summit area of Mount Bukit Raya.

On a recent expedition held by the Bukit Baka Bukit Raya National Park, we had a chance to observe many species of plants including mistletoe. We recorded two species of mistletoe species, one from lowland, and one from the summit area. The first species that grows on lowlands is *Lepidaria bicarinata*, a robust parasitic shrub having bright red flowers. It is growing on a *Flacourtia* tree, unfortunately not identified as the tree was not in flower. The second species, found at an elevation around 2000 m asl, amazed the team. Moreover, it was the first report of mistletoe on the mighty *R. fortunans*.

Flowers of the Mount Bukit Raya endemic *Rhododendron fortunans*.

The pink flowered mistletoe was then identified as *Macrosolen melintangensis*. This species is relatively widespread in the western part of SE Asia as it is distributed from Thailand and Indochina, throughout Sundaland, and The Philippines. Barlow in his taxonomic study (Flora Malesiana ser. 1, vol. 13, 1997) reported that the only known host of this species is fig (Ficus), a member of the morus family, without mentioning the exact name of the species.

Macrosolen melintangensis on *Rhododendron fortunans* in the summit area of Mount Bukit Raya.

M. melintangensis is similar to another species Sundaland species, *Macrosolen retusus*. Both have pink flowers, but the leaf apex is retuse in the latter. *M. retusus* is a predominantly lowland species with a usual elevation range from near sea level to 250 m., while, *M. melintangensis* has a broader range of elevation from near sea level to 2350 m asl. During the survey in the summit area of Mount Bukit Raya, we recorded the presence of a sunbird, apparently a *Cinnyris* sp.. Cloud and the rain hampered our effort to document the bird species, but it is a good indication that the nectar of this species was consumed by that bird. Whether the bird forms a mutualistic symbiosis with *R. fortunans*, we have no evidence. However, the same bird is observed to visit the flower of other heather plant species, *Gaultheria crenulata*, another species that abundantly grows in the summit area of Mount Bukit Raya.

Wendy A. Mustaqim, Universitas Samudra & Tumbuhan Asli Nusantara Foundation, Indonesia.

PRESS REPORTS

Saudi scientists at forefront of gene breakthrough that could boost food security.

RIYADH: Researchers led by experts at King Abdullah University of Science and Technology in Saudi Arabia have identified a gene in a native grain crop that could help to improve food security in the Kingdom and beyond. The gene affects the level of resistance to a parasitic weed that is one of the major threats to pearl millet.

Salim Al-Babili, associate dean of biological and environmental science and engineering at the university and a professor of plant science, said: ‘By producing very high-quality genomes of pearl millet, we found a gene that contributes to the susceptibility of pearl millet to the root

parasitic plant *Striga*. *Striga* represents a major threat to global food security.'
Pearl millet, a common crop in Saudi Arabia and other places with a similar climate, can be vulnerable to *Striga hermonthica*, also known as purple witchweed. The researchers found that pearl millet strains that lack the gene 'CLAMT1b,' which is responsible for the synthesis of specific hormones, are more resistant to the weed than those in which the gene is present.
The finding is significant because it offers fresh insights into beneficial breeding methods for improved food security, the experts said. 'Pearl millet is a traditional crop in Saudi Arabia,' Al-Babili said. 'It is a nutritious and healthy cereal, with pronounced resilience and tolerance for arid environments, making it a promising local crop for the Kingdom's food security.'

Salim Al-Babili, associate dean of biological and environmental science and engineering at the King Abdullah University of Science and Technology and a professor of plant science.

About 100 million people in Asia and Africa, particularly communities in harsh and dry climates, rely on pearl millet as part of their staple diet because of its high nutritional value. By selectively breeding strains that do not have the CLAMT1b gene, crops can be developed that better resist parasitic threats in Saudi Arabia and other arid regions. 'Our work will help in producing *Striga*-resistant varieties that contribute to global food security,' Al-Babili added. 'It also paves the way for improving this important crop and increasing its productivity, toward a wider utilization as a source for food and fodder in the Kingdom.'
This gene-targeted strategy aligns with global agricultural trends that focus on genetic improvements as part of the efforts to address challenges arising from climate change and offer a potential model for improvements to other staple crops that are vulnerable to parasitic plants.

The researchers found that many varieties of pearl millet breeding stocks, including commercially available ones, contain the CLAMT1b gene. They also discovered that the presence or otherwise of the gene had no significant effect on the symbiotic relationship between pearl millet and arbuscular mycorrhizal, a fungus commonly found on the crop that has many benefits for the plant, including increased uptake of water and nutrients and improved disease resistance. The researchers' findings therefore suggest breeding strategies that remove the CLAMT1 gene could help protect the crop from parasitic plants without harming other ecological relationships that benefit its growth and survival.

Haifa Shammari, Arab News, 9 October 2024

A rescue plan for an oddball native plant.

At Auckland Botanic Gardens, conservation specialist Ella Rawcliffe has been trying to plant a seed that's smaller than a grain of sand. She can't embed it in soil – this plant doesn't have roots. Instead, she smooshes it into a branch of *Leptospermum scoparium*, marking its location with a spot of correction fluid.

The leafless native dwarf mistletoe growing on mānuka in the wild. Photo left: titine via iNaturalist NZ. Phot right: Oscar Dove via iNaturalist.

Ella Rawcliffe carefully planting a mistletoe seed on mānuka. (Photo: Emma Simpkins)

The seed – collected from a West Auckland Park – will hopefully grow into the dwarf mistletoe (*Korthalsella salicornioides*). This oddball plant has succulent twiggy appendages instead of leaves, and like all mistletoes, is a parasite, requiring a host to survive. Classified as 'nationally critical', it now needs us to survive too. The dwarf mistletoe is not alone: 357 of the 800 native plants found in Auckland are threatened species, according to Auckland Council's Environmental Services team.

They've spent the past 18 months figuring out 'what plants are where, and how threatened they are,' says Emma Simpkins, senior regional advisor flora. The plants in trouble 'range from little grasses and herbs, through to trees,' says Simpkins. Some are threatened because their habitat is fragmented, or disappearing, or they're now only found in a single location. Many face threats related to climate change, 'which is gonna be pretty challenging for us to manage,' she says. That's where botanic gardens come in: 'Those plants can be looked after, while we figure out the best way to manage them in the wild.'

Two-hundred and twenty-four plant species are candidates for safekeeping at the botanic garden (through seed-banking or propagation, to safeguard their genetics) and work is under way to figure out top priorities. Rawcliffe and the team at the botanic garden, meanwhile, have a different challenge. 'Most of these plants have never been grown before,' says Rawcliffe. 'We've got to figure out how to propagate them.' Something like mistletoe is 'very challenging,' she says.

Ellen Rykers

Bioherbicide helps lift Kenya's witchweed curse on farmers.

Catherine Wanjala's small maize farm in western Kenya was suffering. Her crops would stop growing at knee height and her field was peppered with the lilac flowers indicative of witchweed. The parasitic plant, also known as *Striga hermonthica* was attacking the maize at its roots, sucking the water and nutrients out of it, meaning she was unable to produce enough to keep her three children fed regularly or in school. A couple of seasons ago, however, Wanjala started coating her maize seeds in a fungal bioherbicide based on a strain of *Fusarium oxysporum* fsp *strigae* which, unlike traditional pesticides, targets specific weeds while leaving others untouched. Her maize harvest jumped 675% to 270 kg.

REUTERS/File photo

Kichawi Kill, the bioherbicide made by the social enterprise Toothpick, was launched commercially in Kenya in June last year. The World Food Programme's innovation unit has funded trials to help scale up Kichawi Kill, with the hope the fungus can begin to reach the estimated 1.4 million hectares of land plagued by witchweed across sub-Saharan Africa, WFP's Michael Njagi said.

Meanwhile Wanjala's children are back in school full time and no longer miss meals, she said. 'I am able to provide for my family and live well with them,' she said.
Kichawi Kill is made from a naturally occurring fungus that has been engineered to help it kill the witchweed it targets more effectively, causing no harm to farmers or the local ecosystem. At a cost of 2,000 Kenyan shillings ($15) to protect an acre of farmland, it produces a five to 10-fold return on investment, Toothpick's studies show. 'Using biology to solve biological problems is a far better way than using chemicals,' David Sands, a plant pathologist and one of Toothpick's co-founders, said.

Sands said his early research into the use of fungus to kill specific plants stemmed from the U.S. government wanting to wipe out opium poppy and coca plants in the war on drugs in the 1980s -- a project that was eventually abandoned. Decades later, Kichawi Kill was launched with a very different motive. The fungus has reached over 12,000 farmers like Wanjala, saving almost a million dollars worth of crops.

Toothpick is awaiting regulatory approval for Kichawi Kill's commercial use in Uganda, and is initiating trials in Nigeria, Ethiopia, Cameroon and Ghana, said co-founder Claire Baker.

Reuters October 31, 2024.

New hemiparasite plant species named after Lushai tribe of Mizoram.

A new hemi-parasitic terrestrial plant has been found in Phawngpui National Park of Mizoram. Rabishankar Sengupta, a research scholar from the Botanical Survey of India (registered under Department of Botany, University of Calcutta) along with his research supervisor, Dr. Sudhansu Sekhar Dash, scientist-F & In-Charge, Technical Section, Botanical Survey of India have found this very rare terrestrial hemi-parasitic plant *Phtheirospermum lushaiorum* from the dense forests near the Phawngpui national park peak in Lawngtlai district of Mizoram, marking a new species to science.

This new species to science was published in a reputed plant taxonomy journal -Phytotaxa (see below).

‘These hemi-parasitic plants lack a fully developed root system and form connections with another plant, from which it obtains some or all of its water and minerals. Such plants have chlorophyll and produce their own food by photosynthesis, and in some cases are capable of limited growth in the absence of the host plant. *P. lushaiorum* attaches to the roots of their host and appear like normal plants growing in the soil. They flower only during July to September and fruits are produced during August to October.

‘During September 2021, while conducting the floristic survey in the dense forests of Phawngpui national park, I stumbled upon the yellow flowers of these little plants growing intermixed with *Melastoma malabathricum* and *Argentina lineata* plants. On the subsequent visits, I observed the full growth of the plant and collected it to identify. I noticed only 15–37 mature individuals in the type locality and identified as a new species to science,’ he said.

He said the plants were appearing similar to *Pterygiella* species but the shorter height, distinct bilabiate yellow flower and didynamous stamen observed under a stereomicroscopic observation and consultation with relevant literature resulted in its identification as *P. lushaiorum*, a plant species new to science. Fruit setting was also later observed in some individuals. It is currently known only from the type locality.

‘The specific epithet ‘*lushaiorum*’ is named after the ‘Lushai’ tribe of Mizoram. The specific epithet honours the traditions and cultural heritage of the Lushai tribe of Mizoram for their commitment towards biodiversity conservation,’ he said. ‘The Far Pak area of Phawngpui national park is like a picnic spot and popular trekking route with regular anthropogenic activities during the dry season (October-April) and the plant species grow near the trekking route. Therefore, the hemi-parasitic species is dwindling in its natural habitat due to both anthropogenic and natural threats,’ he said.

Rabishankar expressed concern that the fringe village dwellers regularly collect leaf litter from the area which is detrimental for these unique hemi-parasitic plants. ’During our regular field visit from 2018-2022, we have tried to motivate the locals to conserve their rare wealth which resulted in a positive response. Intervention from the forest department would be the only plausible option for their conservation,’ he said.

Team EastMojo

Sikkim: Orchid which steals carbon from underground fungus found.

PC-Madhusudan Khanal

Guwahati: Madhusudan Khanal, a research scholar with the Department of Botany, Sikkim_University, visited Rey Valley Sikkim for a field survey and discovered a unique orchid which feeds on fungus. ‘I came across it in 2022. That time I found them fruiting. It was a long wait, from March till June I used to visit the place to look for it every 15 days. After careful observation and comparing it with relevant literature, I was thrilled to find it is a new orchid species- *Gastrodia sikkimensis*’ Khanal is currently pursuing PhD from the department of Botany, Sikkim University under the supervision of Dr. Santosh Kumar Rai and Dr. Devendra Kumar. He is also working as a project Coordinator in G.B.Pant - North East Regional Centre, Arunachal Pradesh.

'Mostly, they are underground with a tuberous rhizome. It takes food from the fungus and blooms. More interestingly, these have foul smelling flowers that attract fruit flies,' he said.
He said this group of orchids are called mycoheterotrophs or holomycotrophs as they rely fully on the fungal host for their sustenance. 'It has no chlorophyll hence it steals carbon from the underground fungus,' he said. The orchid was named after Sikkim from where it was found. 'These orchids of the genus Gastrodia prefer to grow in a dark shaded forest floor with decaying leaf litter. This species from Sikkim has an almost cleistogamous flower but with only a slight perforation at apex unsuitable for any pollinator to access. The species can be presumed to be a self-pollinating species,' he said. 'Less than 40 individuals were observed growing at its type habitat. As the area is very close to an area with ample anthropogenic disturbances it is very vulnerable at its type habitat. Plants are much shorter during flowering, but the pedicel elongates much rapidly during capsule formation,' he further said.
The research on the biology of these elusive holomycotrophs would surely expand our horizon of the mycoheterotrophic world, he observed.

Khanal has also discovered *Gastrodia bambu*, a mycoheterotrophic orchid species for the first time in India from Kalimpong, West Bengal, recently. 'During a recent field expedition to observe the angiosperm flora of Kalimpong, West Bengal, India, I had come across a very unique mycoheterotrophic terrestrial orchid species in flowering from within the bamboo thickets of Bong Busty, Kalimpong, West Bengal,' he said.

'All the recorded habitat qualities are declining due to developmental activities, expansion of agricultural fields and many other anthropogenic activities including tourism. The threat status of this species is assessed as Endangered from a global perspective,' he said.

Madhusudan Khanal was assisted by research scholars, assistant professors and scientists from GBPNIHE, Sikkim University and Botanical Survey of India in this discovery.

Roopak Goswami, January 25,2024.

Rare parasitic plant rediscovered after 44 years near Lake Michigan.

The Wisconsin Department of Natural Resources (DNR) has announced that a rare parasitic plant resurfaced after it hadn't been seen for 44 years. The newly rediscovered plant was found in Manitowoc County 'on the dunes overlooking Lake Michigan,' the Wisconsin DNR said in a press release on May 3. Tom Underwood, a volunteer with the Rare Plant Monitoring Program, identified the plant as a clustered broomrape (*Orobanche fasciculata*), the DNR wrote in its 2022 Annual Report.


Clustered broomrapes are in the broomrape family (iStock)

'Tom first set out to find this population, which was last seen in 1979, in 2018, but after 'an exhausting search up, over and along deep, dry and unconsolidated sand,' he gave up,' the report added. What made the search even more difficult was the lack of information surrounding the plant's last known location. 'Clustered broomrape is a tiny plant that could easily be buried by shifting sand …and we didn't have very precise information on where it was found,' the report noted. 'It was the proverbial needle in a haystack survey.'

The Wisconsin DNR describes these parasitic plants as having four to 10 pedicels (stalks that support the flower) with flowers that have a 'loose, flat-topped corymb' (flower cluster with a long stalk) surpassing the stem. Of the 2,366 plants species in Wisconsin, nearly 15% of them are considered rare and compiled in the 'endangered, threatened or of special concern list,' the DNR release stated. In 2022, over 220 reports of rare plants were submitted by volunteers throughout Wisconsin, including new areas that had never been documented before.

'These new discoveries are very exciting. They help increase our understanding of the number and locations of rare plant species in Wisconsin so we can better monitor and protect them,' Kevin Doyle, DNR natural heritage conservation botanist and rare plant monitoring program coordinator, said in the Wisconsin DNR press release.
'Volunteers also revisit known locations, another important part of the conservation process. If we don't check on these populations, we won't know when they are in trouble,' he added.

Sydney Borchers, Fox News.

'Owl's Eye': Thailand's oddest flower set for rare appearance.

Botanists and tourists flock to a Tak wildlife sanctuary to catch a glimpse of the bizarre *T. thaithongiana.* One of the rarest and strangest-looking plants in Thailand is about to poke its head above the soil for its annual appearance in a remote forest on the eastern border with Myanmar. *T. thaithongiana* was discovered growing on the slopes of Doi Hua Mot, Umphang Wildlife Sanctuary, Tak Province in

2018. Tourists and botanists are now scouring the sanctuary's forest floor to catch sight of this bizarre owl-shaped plant, which glows green and goes by the Thai name of Phisawong Thaithong or Phisawong Owl's Eye.

Thismia thaithongiana Photo Chatree Lertsintanakorn/WNPA)

T. thaithongiana is a parasitic plant that feeds on fungi, blooming just once a year at the end of the rainy season in October. It is only found under or near dwarf date palms, which host the fungus on which it depends.

T. thaithongiana spends most of the year underground as a rhizome, sending up a tiny stem around 2 millimetres long at the end of the rains. The tip of this stem blooms into one of nature's most peculiar-looking flowers, appearing either singly or, occasionally, in pairs or clusters. The flower consists of six green petals, or tepals, arranged in two distinct rings. The outer ring contains three independent tepals with horn-like appendages at the tips, while the inner ring features three fused tepals with similar horn-like structures, giving the flower a unique cap-like appearance. The ovary is positioned beneath the tepals and contains a single chamber. Mature fruits and seeds have yet to be discovered due to the plant's short blooming period during the rainy season, making it difficult to track.

T. thaithongiana was named in honour of Obchant Thaithong, an associate professor in the Department of Botany at Chulalongkorn University.

The Nation, 2 October, 2024.

Mistletoe numbers grow thanks to volunteers.

Mistletoe abundance has increased more than 3600% per cent over 22 years in Tikitapu Scenic Reserve at Lake Ōkāreka thanks to the efforts of volunteers and staff across multiple
Established in 2002, the Ōkāreka Mistletoe Restoration Project aims to increase population of two threatened semi-parasitic mistletoe species in Tikitapu Scenic Reserve, Rotorua, through animal pest and weed control.
Mistletoes are semi-parasitic shrubby plants growing on host trees. They have green leaves that photosynthesise their own sugars but rely on a host plant for water and nutrients.
White mistletoe, *Tupeia antarctica,* which has a threat ranking of 'At Risk – Declining', has increased through the lifetime of the Ōkāreka project from 218 to 8044 live plants in 2024 within Tikitapu Scenic Reserve, while regionally threatened green mistletoe, *Ileostylus micranthus*, has naturally colonised the reserve and now numbers at 56 plants, up from zero.
Department of Conservation ranger Kristina Thompson says the phenomenal success has been down to the dedication of volunteers.

'The combined work of Rotorua Forest and Bird, Rotorua Botanical Society, and Landcare Ōkāreka, with the support of the mana whenua and local agencies, has seen the mistletoe flourish.' 'The project enjoys ongoing support and engagement from Tūhourangi Tribal Authority, The Rotokakahi Board of Control, DOC, and Bay of Plenty Regional Council. It's this shared commitment to a common goal which has achieved so much for mistletoe and the health of the Ōkāreka ngahere.' Animal control prevents the high impact of possum browse on mistletoe and protects bird populations which disperse seed. Plant pest control ensures the survival of appropriate host plants.

Ōkāreka Mistletoe Restoration Project co-lead Mike Goodwin says the people who had the vision to start the project deserve recognition. 'It's taken 20 years, they aren't all here to see it, but we have a pretty spectacular result.' Co-lead Margaret Dick agrees, saying the results are noticeable for more than just mistletoe. 'Residents who've lived here all their lives have commented on the amount of birdsong – it's changed that much.'

National Volunteer Week Te Wiki Tūao ā-Motu honours the collective energies and mana of volunteers in Aotearoa this 16-22 June.

mediadoc.govt,nz 19 June 2024**.**

Sarcodes sanguinea - Snow plant.

Snow plant is an herbaceous perennial wildflower with a limited geographic distribution in California, Nevada, and Oregon. Snow plant with its scarlet red coloration and early spring flowering is a beautiful wildflower. Snow plant is the only mycotrophic wildflower in the heath (Ericaceae) that is not a ghostly white color or various shades of reddish to purplish brown.

Sarcodes sanguinea. Photo Robert Potts.

Snow plant's distribution is local. It is uncommon in its habitat. When a fortunate hiker does come across the brilliant red scarlet plants, she will generally be greeted by several individual snow plants occurring as a small colony.

Sarcodes sanguinea (*Sarcodes* – flesh-like as to the inflorescence; *sanguinea* – blood as to the color of the plant) ranges in height from 15 to 30 cm. The plant is a brilliant scarlet red except for the maturing fruit that is pinkish-red. It is fleshy and glandular pubescent. The leaves are scale-like. The inflorescence is a raceme of densely arranged flowers. The flowers are pendant. The fruit is a capsule containing sticky seeds. Once ripened, seed is released through an opening at the base of the style.

S. sanguinea flowers from late spring to mid-summer. It is found in mature, moist, shaded, coniferous, or mixed forests from 1,000 to 3,100 meters.or original article plus more pictures see: https://www.fs.usda.gov/wildflowers/beauty/mycotrophic/sarcodes_sanguinea.shtml

USDA US Forest Service

Two bio-geographic hotspots in India yield two new plant species.

An aerial stem-parasitic flowering plant species *Dendrophthoe longensis* was from Long Islands of middle Andamans, whereas a small herb Petrocosmea arunachalense was discovered from a cave from West Kameng district of Arunachal Pradesh.

A team led by scientist Lal Ji Singh, discovered aerial stem-parasitic flowering plant species *D. longensis* from the Long Islands of middle Andamans.

Dendrophthoe longensis | Photo: Special Arrangement

The aerial stem-parasitic flowering plant species *D. longensis* was found on the specific host plant - Mango, *Mangifera indica* in the edge of evergreen forests, low land areas of tropical forests. The species is from the family Mistletoe - a group of hemi-parasitic flowering plants which exhibit a suite of remarkable adaptations associated with the hemi-parasitic habitat.
'The species is sparsely scattered and confined to a few localities of Long Island. Its distribution was recorded only from Sigmendera, Lalaji Bay and near the forest guest house of Long Island. Larvae bore into entire plant parts (young shoots, leaves, inflorescence, flowers, young fruits) causing severe damage and leading to death of this hemi-parasitic mistletoe species,' said Dr. Singh, who is head of Andaman and Nicobar Regional Centre of Botanical Survey of India.

Conservation status of the new species is assessed as 'Endangered' based on the IUCN categories and criteria (IUCN, 2020). Indian *Dendrophthoe* are represented by nine species among which four are from Andaman and Nicobar Islands of which two species are endemic to the region.

'Aerial stem-parasitic flowering mistletoe plants are under great pressure due to destruction of natural habitat and other anthropogenic activities especially timber harvesting of host tree species, developmental works which are causing population declines worldwide,' Dr. Singh added. The details of the discovery have been published in an International Journal of Botanical Taxonomy and Geobotany.

Shiv Sahay Singh, June 24, 2024.

OBITUARY

Aline Raynal (1937 – 2022).

It is with great sadness that George Sallé informs us of the death of Aline Raynal on July 16th, 2022, in her 85th year, well-known as a botanist, photographer and botanical illustrator. Professor of Botany at the Museum National d'histoire Naturelle of Paris, her research was mainly focussed on tropical plants, but also on plants showing special behaviours, such as aquatic, epiphytic and parasitic plants. She was particularly efficient during fields trips in West Africa from 1985 to 2000 while involved in European research programmes, concerning *Striga* species parasitizing cereals in Africa, and African mistletoes parasitizing shea butternut and rubber trees. She widely provided her botanical knowledge to European and African students preparing Thesis at the Pierre et Marie Curie University of Paris. Her name was given to about forty new species. She was also a brilliant teacher, able to transmit her passion for plants to students. In 1994, she published a very successful book' La botanique redécouverte' in which everyone can easily find the basis of Botany through original drawings and schemas. She also published many scientific papers, most of them focussed on African plants and books as well, at Editions BELIN where she directed the botanical collection. Botany and Ecology lost a brilliant scientist.

THESES

Yanquian Ding. 2024. Origin and maintenance of diversity in British *Euphrasia* (Orobanchaceae). Advisors Alex Taylor and Pete Hollingsworth. PhD Edinburgh Unive rsity. http://dx.doi.org/10.7488/era/4137

Plant species exhibit extensive diversity due to various evolutionary processes such as speciation, polyploidisation, hybridisation, and shifts in mating system, which can rapidly generate novelty. The maintenance of this diversity subsequently depends on both biotic and abiotic factors that may lead to population expansion or extinction. The taxonomically complex genus *Euphrasia* in Britain and Ireland, with its great diversity in ploidy, mating systems, and ecology, serves as an ideal system to address fundamental questions about the origins and maintenance of plant diversity. The overarching aim of this thesis is to elucidate the evolutionary mechanisms driving diversity in this rapid radiation at both inter- and intra-species levels. First, we use genotyping-by-sequencing and spatially-aware clustering methods to investigate genetic structure across 378 populations spanning 18 British *Euphrasia* species, including diploids and tetraploids with varying mating systems (Chapter 2). The rest of the thesis performs more focused comparisons of the distinct selfing species E. micrantha and the mixed-mating species *E. arctica*. This includes a phylogeographic analysis using chloroplast and nuclear ribosomal DNA (Chapter 3), and an assessment of the impact of mating systems on genetic structure using nuclear SNP data (Chapter 4). Finally, a common garden experiment investigates ecological adaptation by measuring plant performance in different soil pH and host conditions (Chapter 5). The population genetic study reveals permeable species boundaries, with genetic clustering largely by geography rather than species identity. Notably, only northern Scottish populations of E. micrantha show clear genome-wide divergence from other species. Incongruence between plastid and nuclear ribosomal genomes within E. micrantha reveals different evolutionary histories. While cpDNA indicates postglacial expansion with distinct East and West dispersal in Scotland, nrDNA suggests ongoing hybridisation with other species, signifying local hybridisation. Nuclear SNP data show high inbreeding coefficients and many runs of homozygosity in both E. micrantha and E. arctica, showing of the profound genomic consequences of self-fertilisation in *Euphrasia*. However, occasional outcrossing may rescue the long-term loss of diversity and result in evolutionary novelty. From an ecological perspective, the common garden study found that soil pH significantly influenced the performance of *Euphrasia* species. Notably, E. micrantha displayed a narrower pH tolerance compared to E. arctica, highlighting the importance of edaphic specialisation, which may play a role in *Euphrasia* speciation. These findings offer insights into the complex evolutionary pressures shaping *Euphrasia*'s diversity and highlight the need to study how the interactions between selfing, hybridisation, polyploidy and edaphic specialisation impact speciation in other plant lineages.
See also:

Ding, Y., Metherell, C., Huang, W., Hollingsworth, P. M. and Twyford, A. D. (2023). 'Genomic clustering by geography not species in taxonomically complex BriKsh and Irish eyebrights (*Euphrasia*)'. bioRxiv. 2023.03.19.533315

McClean, S.K. 2024. A histological investigation of *Arceuthobium pusillum* infections in *Picea rubens* and *Picea glauca*. Bowdoin College, Maine, USA. Advisor Barry Logan. 23 pp.

Abstract
Arceuthobium pusillum is a hemiparasite that infects select *Picea* species. The hosts of *A. pusillum* do not experience the same symptoms of infection. *A. pusillum* infections are more fatal to *P. marinara,* and *P. glauca. P. rubens*, on the other hand, can survive longer with sustained infection. This presents itself as a contemporary issue because *P. glauca,* one of the parasite's most vulnerable hosts, was untethered from ecological competition when old growth forests were subjected to large scale anthropogenic disturbances. These disturbances allowed *P. glauca* to proliferate, with *A. pusillum* following. A deeper understanding of the host-species specific responses to *A. pusillum* infection can broaden general knowledge of parasitic growth and development while also potentially inspiring conservation techniques. This study took advantage of the intrinsic differences between host and parasite to visualize infections in *P. rubens* and *P. glauca*, highlighting differences in infection outcome. By illuminating lignin and callose within cross sections of infected *P. rubens* and *P. glauca* branches, it was revealed that *P. rubens* forms dense bands of cells around the cortical strands of infection.

These bands form more frequently in *P. rubens* than in *P. glauca* and are of a significantly larger area in *P. rubens* than in *P. glauca* (t(8), p=0.003, p=0.005). The discovery of the exterior bands is novel and exciting, as the bands are possibly made of callose and potentially facilitate *P. rubens* survival against *A. pusillum* infection. The foundational discoveries and results of this study should inspire, and warrant, further analysis.

PhD POSITION

Understanding and applying soil microbiome-mediated control of parasitic weeds.

Are you interested in understanding and applying soil microbiome effects on (parasitic) weed seed germination and viability? Then we have the perfect opportunity for you at Centre for Crop Systems and Analysis, Plant Sciences Group at Wageningen University & Research.

We are looking for a PhD student who will contribute to an improved understanding of the effects of soil-borne volatile organic compounds (VOCs) on (germination and viability of) seeds of the parasitic weed *Striga*, and applications for control in the field.

Your duties and responsibilities include:

- identify and prioritize (locally available) high-potential sulfur-rich organic sources and (companion) crop species stimulating soil bacteria to overproduce VOCs that inhibit or kill *Striga* seeds;
- together with other project members design and execute lab, greenhouse and field experiments to unravel mechanisms and test effectiveness and feasibility of applications to control *Striga*;
- analyse and interpret data from lab, greenhouse and field experiments addressing both fundamental and applied research questions;
- communication of results in scientific publications and on (inter)national workshops;
- writing a PhD thesis;
- contributing to the teaching portfolio of the group.

Your role

Within the project your role will be to proceed with the project explorations for soil amendments or companion crop species that stimulate soil bacteria to overproduce sulphurous volatiles that inhibit *Striga* germination or kill *Striga* seeds. On the one hand you will contribute to an increased understanding of the mechanisms of bacterial volatile effects on *Striga* seeds, and on the other hand you will apply such acquired insights to the development of *Striga* control options. You will need to field test such control options in sorghum, millet or rice crops in Africa (Senegal or Ethiopia), on their effectiveness and feasibility for smallholders. You will work within a team of researchers at the chair group and within the larger project team.

You will work here

The research is embedded within Centre for Crop Systems Analysis, and you will become a member of the Crop and Weed Ecology chair group, which is led by Prof. Anten. Your PhD project is further embedded in the PROMISE project This project aims at generating new knowledge on soil microbiome – *Striga* – crop interactions with the overall aim to develop new *Striga* control options that effectively target the soil seed bank and are feasible and accessible to cereal farmers in Africa. Parasitic weeds such as *Striga* impose serious crop losses, disproportionally affecting smallholders in Africa. This issue is aggravated by soil degradation. This project explores an out-of-the-box agroecological solution for this issue.

N.B. Closing date 18th November 2024.

FORTHCOMING MEETING

The 9th International Weed Science Society Congress (after several changes of plan) will be held along with the Weed Science Society of China and the Asian-Pacific Weed Science Society in Nanjing, Taiwan, 19-24 October 2025. The Congress, with the theme 'New Technology Leads the Way of Weed Science', will be held in the International Youth Convention Hotel, Nanjing, China. The Local Organizing Committee headed by Prof. Xiangju Li (Chair) and Sheng Qiang (Co-Chair) is enthusiastic in preparing an excellent program with plenty of science and cultural exchange. https://www.iwss.info/congress-2025.html

GENERAL WEBSITES

For information on the International Parasitic Plant Society, past issues of Haustorium, etc. see: http://www.parasiticplants.org/

For Dan Nickrent's 'The Parasitic Plant Connection' see: http://www.parasiticplants.siu.edu/

For the Parasitic Plant Genome Project (PPGP) see: http://ppgp.huck.psu.edu/

For information on the new Frontiers Journal 'Advances in Parasitic Weed Research' see: http://journal.frontiersin.org/researchtopic/3938/advances-in-parasitic-weed-research

For a description of the PROMISE project (Promoting Root Microbes for Integrated *Striga* Eradication), see: https://promise.nioo.knaw.nl/en

For PARASITE - Preparing African Rice Farmers Against Parasitic Weeds in a Changing Environment: see http://www.parasite-project.org/

For the Toothpick Project – see https://www.toothpickproject.org/

For the Annotated Checklist of Host Plants of Orobanchaceae, see:

http://www.farmalierganes.com/Flora/Angiospermae/Orobanchaceae/Host_Orobanchaceae_Checklist.htm

For a description and other information about the *Desmodium* technique for *Striga* suppression, see: http://www.push-pull.net/

For information on the work of the African Agricultural Technology Foundation (AATF) on *Striga* control in Kenya, including periodical 'Strides in *Striga* Management' and 'Partnerships' newsletters, see: http://www.aatf-africa.org/

For Access Agriculture (click on cereals for videos on *Striga*) see: http://www.accessagriculture.org/

For information on future Mistel in derTumortherapie Symposia see: http://www.mistelsymposium.de/deutsch/-mistelsymposien.aspx

For a compilation of literature on *Viscum album* prepared by Institute Hiscia in Arlesheim, Switzerland, see: http://www.vfk.ch/informationen/literatursuche (in German but can be searched by inserting author name).

For an excellent publication by the Universidade Federal do Rio Grande do Sul on Southern Brazilian Mistletoes (Dettke, G.A. and Waechter, J.L. 2013) see: https://fieldguides.fieldmuseum.org/sites/default/files/rapid-color-guides-pdfs/493.pdf)

For a participatory website cataloguing tools for the identification and localization of fauna and flora, including parasitic plants see: https://nadaba.net/fr

For Phytoimages, a useful source for photos of weeds, including many parasitic species, see: http://www.phytoimages.siu.edu

LITERATURE

N.B. This listing does not cover parasitic weeds involved in therapeutic uses, nor papers relating to strigolactones affecting non-parasitic plants.

*Indicates entries which have not yet been peer-reviewed

Adeyanju, A.O., Rich, P.J. and Ejeta, G., 2024. A powerful molecular marker to detect mutations at sorghum LOW GERMINATION STIMULANT 1. The Plant Genome: (https://doi.org/10.1002/tpg2.20520) [Describing development of a polymerase chain reaction (PCR)-based *LGS1* marker that detects all known natural *lgs1* alleles and using that successfully to improve *Striga* resistance in a sorghum breeding program.]

*Aguirre-Zúñiga, J.J., Heredia-Bobadilla, R.L. and Franco-Maass, S., Fredericksen, T.S. and Endara-Agramont, A.R. 2024. Occurrence and effect of dwarf mistletoe *(Arceuthobium globosum* and *A. vaginatum*) in high-elevation forests in México. SSRN?? (https://ssrn.com/abstract=4736117) [Finding infestations on *Pinus hartwegii* at 32% of sites surveyed.]

*Albal, A., Costea, M. and Stefanović, S. 2024. Molecular systematics of *Cuscuta* subgenus *Monogynella* (Convolvulaceae) based on plastid and nuclear sequences. Taxon: (https://doi.org/10.1002/tax.13264) [Presenting an in-depth phylogeny for *Cuscuta* subg. *Monogynella* based on plastid *trnL-F* and nuclear ITS sequence regions.]

Aldughayman, M., Thorogood, C.J., Al-Mayah, A.A. and Hawkins, J.A. 2024. An account of the genus *Cistanche* (Orobanchaceae) in Iraq and taxonomic considerations in the Middle East. PhytoKeys 238: 281-294. (https://doi.org/10.3897/phytokeys.238.116470) [Concluding that, although a number of different taxa had been reported from Iraq, they all belonged to *C. tubulosa*.]

Aledhari, A.H., Jabbar, Sh.M. and Sardar, A.Sh. 2024. *Orobanche garatiaca* Sardar *et* Aledhari: a new species from the Kurdistan region of Iraq. SABRAO Journal of Breeding and Genetics 56(3): 1199-1206. (http://doi.org/10.54910/sabrao2024.56.3.260 [Recording *garatiaca* on a variety of hosts, including detailed distinctions from *P. nana.*]

Al Saleh, N., Alimi, L.O., Jamil, M., Qutub, S., Berqdar, L., Al-Babili, S. and Khashab, N.M., 2024. Inhibition of the germination of root parasitic plants by zeolitic imidazolate framework-8. ChemPlusChem,: (https://doi.org/10.1002/cplu.202400457) [ZIF-8 (C-ZIF-8) and amorphous ZIF-8 (Am-ZIF-8) were shown to inhibit *Striga (hermonthica*?) germination without affecting rice, and the mechanism of action explained.]

Alzate, J.F., González, F.A. and Pabón-Mora, N. 2024. Back together: Over 1000 single-copy nuclear loci and reproductive features support the holoendoparasitic Apodanthaceae and Rafflesiaceae as sister lineages in the order Malpighiales. Molecular Phylogenetic and Evolution 201: (https://doi.org/10.1016/j.ympev.2024.108217)

Atsmon, G., Pourreza, A., Kamiya, Y., Mesgaran, M.B., Kizel, F., Eizenberg, H. and Lati, R.M. 2024. Clustering symptomatic pixels in broomrape-infected carrots facilitates targeted evaluations of alterations in host primary plant traits. Computers and Electronics in Agriculture 220: (https://doi.org/10.1016/j.compag.2024.108893) [A study of hyperspectral techniques showing the possibility of detecting the symptoms from infection by *Phelipanche ramosa* as distinguished from other environmental stresses.]

Baker, C.S., Sands, DC and Nzioki, H.S. 2024. The Toothpick Project: commercialization of a virulence-selected fungal bioherbicide for *Striga hermonthica* (witchweed) biocontrol in Kenya. Pest Management Science 80(1): 65-71. [Discussing the barriers which have hindered the development and adoption of microbial herbicides. How knowledge, policy, and finance contributed to the successful commercialization of the use of strains of *Fusarium oxysporum* f.sp. *strigae* for killing *Striga hermonthica*.]

Bakewell-Stone, P. 2024. *Orobanche ramosa* (branched broomrape). CABI Compendium: (https://www.cabidigitallibrary.org/doi/pdf/10.1079/cabicompendium.37747) [An up-to-date compilation of detailed information on *Orobanche/Phelipanche ramosa*, rather curiously using the 'old' name.]

Balbuena, M.S., Buchmann, S.L., Papaj, D.R. and Raguso, R.A. 2024. Organ-specific volatiles from Sonoran desert *Krameria* flowers as potential signals for oil-collecting bees. Phytochemistry 218: (https://doi.org/10.1016/j.phytochem.2023.113937) [Concluding that *β*-ionone is the attractant for the oil-bee pollinator in *K. bicolor*.]

Bascos, E.M.A., Fernando, E.S., Duya, M.V. and Rodriguez, L.J.V. 2024.What's that smell? The putrid scent of *Rafflesia consueloae*, its origin and developmental regulation. Flora 318: (https://doi.org/10.1016/j.flora.2024.152571) [Identifying 13 volatiles from *R. consuelaoe* including sulfur-containing dimethyl disulfide (DMDS), which is mainly responsible for the rotten smell of the flowers.]

Bawin, T., and Krause, K. 2024. Rising from the shadows: Selective foraging in model shoot parasitic plants. Plant, Cell & Environment 47:1118-1127. [An excellent review of what is known and not known about shoot parasites (e.g. *Cuscuta*) that respond to biotic and abiotic cues and integrate these into complex interaction pathways.]

Boukteb, A and 8 others. 2024. Global changes in gene expression during compatible and incompatible interactions of faba bean (*Vicia faba* L.) during *Orobanche foetida* parasitism. PlosOne: (https://doi.org/10.1371/journal.pone.0301981) [Identifying the gene expression of VuCYP722C homolog, coding for a key enzyme involved in orobanchol biosynthesis, exclusively in the susceptible host.]

Bradley, J.M., Butlin, R.K. anfd Scholes, J.D. 2024. Comparative secretome analysis of *Striga* and *Cuscuta* species identifies candidate virulence factors for two evolutionarily independent parasitic plant lineages. BMC Plant Biology 24(251): (https://doi.org/10.1186/s12870-024-04935-7) [Comparing the different virulence factors secreted by *Striga* and *Cuscuta* spp. and the genes involved.]

Bürger, M and Chory, J. 2024. A potential role of heat-moisture couplings in the range expansion of *Striga asiatica*. Ecology and Evolution 14(5): (https://doi.org/10.1002/ece3.11332) [Using the Global Biodiversity Information Facility (GBIF) to look for correlations between heat-moisture coupling events with distribution of *Striga asiatica* and predicting shifts in distribution and abundance of *Striga* and *Orobanch*e spp.]

Bürger, M. and Chory, J. 2024. Identification challenges of *Castilleja* (Orobanchaceae) on iNaturalist. PLoS ONE 19(10): (https://doi.org/10.1371/) [This study highlights the need for improved algorithms to enhance initial species identification accuracy in the 200 species of *Castilleja*.]

*Cai, L., Liu,L. and Davis, C.C. 2024. The danger zone: the joint trap of incomplete lineage sorting and long-branch attraction in placing Rafflesiaceae. bioRxiv: (https://doi.org/10.1101/2024.08.07.606681 [Rejecting the monophyletic (Rafflesiaceae, Euphorbiaceae) clade proposed in previous studies and favoring an early divergence of Rafflesiaceae in close affinity with Euphorbiaceae, Peraceae, Putranjivaceae, and Pandaceae.]

Cardoso, L.J.T. and Braga, J.M.A. 2024. *Thonningia alba* (Balanophoraceae), a new root holoparasitic species from Madagascar. Kew Bulletin 79: 75–82. (https://doi.org/10.1007/s12225-023-10156-2) [Describing *T. alba* from the rain forest.]

Carneiro, L.T., Cocucci, A.A., Sérsic, A.N., Machado, I.C. and Alves-Dos-Santos, I. 2024. Pollinator-mediated selection on *Krameria* oil flowers: a flower–pollinator fit adaptation to an atypical oil-collecting behaviour?, Annals of Botany 133: 1-12. (https://doi.org/10.1093/aob/mcae102) [Emphasising the adaptive significance of the specialized flag petals of *Krameria* in the absence of the grasping behaviour.]

Cheek, M., Molmou, D., Gosline, G. and Magassouba, S. 2024. *Keita* (Aptandraceae-Olacaceae s.l.), a new genus for African species previously ascribed to *Anacolosa,* including *K. deniseae* sp. nov., an endangered submontane forest liana from Simandou, Republic of Guinea. Kew Bulletin 79: 317–332. (https://doi.org/10.1007/s12225-024-10172-w) [Creating the new genus *Keita*, to include *K. unicifera* and a new species *K. deniseae.*]

Chen, LQ., Li, X., Yao, X. *et al.* 2024. Variations and reduction of plastome are associated with the evolution of parasitism in Convolvulaceae. Plant Molecular Biology 114:(40): (https://doi.org/10.1007/s11103-024-01440-1) [Reviewing the sequence of degeneration of plastid genes in 7 species of *Cuscuta* associated with their parasitic habit and noting massive degeneration in those of 3 species in section Grammica..]

Cignitas, E., Basbagci, G., Suku, G and Kitis, Y.E. 2024. *Fusarium fujikuroi* as a potential biocontrol agent of the parasitic weed *Phelipanche aegyptiaca* in tomato. Journal of Phytopathology 3: (https://doi.org/10.1111/jph.13344) [Isolate Fi of *F. fujikuroi* found to cause moderate mortality of *P. aegyptiaca* while being non-pathogenic to tomato.]

Clark, J. and Bennett, T. 2024. Cracking the enigma: understanding strigolactone signalling in the rhizosphere. Journal of Experimental Botany 75(4): 1159-1173. (https://doi.org/10.1093/jxb/erad335) [A review examining the intentional consequences of strigolactone exudation, and also the unintentional consequences caused by eavesdroppers. Examining the molecular mechanisms by which strigolactones act within the rhizosphere, and the enigma of strigolactone molecular diversity.]

*Córdoba, E.M., Fernández-Aparicio, M., González-Verdejo, C.I., López-Grau, C., del Valle Muñoz-Muñoz, M. and Nadal, S. 2024. Search for resistant genotypes to *Cuscuta campestris*infection in two legume species, *Vicia sativ*a and *Vicia ervilia*. Plants 10: 738. (https://doi.org/10.3390/plants10040738) [[Identifying *V. sativa* genotype Vs.1 as a highly resistant phenotype, showing a hypersensitive response.]

Croze, T., Ruiz, L.C., Tison, J-M., Michaud, H., Molina, J. and Moal, G.M. 2024. *Phelipanche cingularum*

(Orobanchaceae), a new species from southern France. Phytotaxa 653 (1): 001–019. (https://doi.org/10.11646/phytotaxa.653.1.1 [Recording *P. cingularum* from rocky habitats on *Hesperis laciniata,* 'remotely related to *P. ramosa*'.]

*de Andrés, E.G., Valeriano, C. and Camerero, J.J. 2024. Long-term effects of mistletoe removal on radial growth of semi-arid Aleppo pine forests. Forests 15(7): (https://doi.org/10.3390/f15071113) [In NE Spain comparison of areas of *Pinus halepensis* forest from which *Viscum album* ssp. *austriacum* had, and had not, been removed 10 years previously provided evidence for the long-term positive effect of the removal on radial growth of the pines.]

De Vega, Ortiz, P.L. and Arista, M. 2024. Host-driven phenotypic and phenological differentiation in sympatric races of a parasitic plant. Flora 320: (https://doi.org/10.1016/j.flora.2024.152617) [Showing that three morphologically similar races of *Cytinus hypocistis* parasitising *Cistus ladanifer, C. salviifolius*, and *Halimium halimifolium* (Cistaceae) in six co-occurring populations differed significantly across multiple phenotypic and phenological aspects.]

*Degebasa, Lemma, Tessema, Taye, Bekeko, Zelalem and Belete, Ketema. 2024. Management of *Striga* through moisture conservation and cowpea intercropping in sorghum field, eastern Ethiopia. SSRN: (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4740624) [The use of tied-ridge and cowpea between rows produced the highest sorghum yield (4.1 t/ha) and the highest reduction (90.3%) of *S. hermonthica*.]

Delgado-Pérez, G., Sánchez, D., Ortega-González,P.F. and Vázquez-Santana, S. 2024. Unlocking the secrets of parasitic plants: a comparative study of the development and floral morphoanatomy of *Pholism*a (Lennoaceae). Flora 317: (https://doi.org/10.1016/j.flora.2024.152567) [A detailed study of the floral morphoanatomy of *P. arenarium, P. sonorae* and *P. culiacana*.]

Ding, A., and 7 others. 2024. Exploring information exchange between *Thesium chinense* and its host *Prunella vulgaris* through joint transcriptomic and metabolomic analysis. Plants 13(6): 804. (https://doi.org/10.3390/plants13060804)) [Metabolomic and transcriptomic analyses showed an extensive exchange of information between host and parasite, including metabolites and mobile mRNAs, that might facilitate the haustorium formation.]

Dossa, E.N., Shimelis, H. and Shayanowako, A.I.T. 2024. Genetic diversity analysis of tropical and sub-tropical maize germplasm for *Striga* resistance and agronomic traits with SNP markers. PLOS: (https://doi.org/10.1371/journal.pone.0306263) [Detailed study involving *S. asiatica* as well as *S. hermonthica.*]

Dossa, E.N., Shimelis, H. and Shayanowako, A.I. 2024. Genome-wide association analysis of grain yield and *Striga hermonthica* and *S. asiatica* resistance in tropical and sub-tropical maize populations. BMC Plant Biology 24:871 (https://doi.org/10.1186/s12870-024-05590-8) [Concluding thlat genes identified may facilitate simultaneous selection for *S. hermonthica* and S. asiatica resistance and grain yield in maize after further validation and introgression in breeding pipelines.]

Edagbo, D.E., Ajiboye, T.O., Alowonle, A.A. and Oyewole. O.B. 2024. Infestation and prevalence of the mistletoe, *Tapinanthus bangwensis* on host plants in Moor Plantation, Ibadan, Nigeria. Journal of Research in Forestry, Wildlife & Environment 16(1): 105-114. [19 species in 14 families were susceptible to infestation from *T. banguensis.*].

Edema, H., Bawin, T., Olsen, S., Krause, K. and Karppinen, K. 2024. Parasitic dodder expresses an arsenal of secreted cellulases with multi-substrate specificity during host invasion. Plant Physiology and Biochemistry 210: (https://doi.org/10.1016/j.plaphy.2024.108633) [Studying the role of glycoside hydrolase family 9 (GH9) cellulases (EC 3.2.1.40 in the invasion of tomato tissues.]

Edlund, L., Anderson, B.M. Huei-Jiun Su, Robison, T., Caraballo-Ortiz, M.A., Der, J.P. , Nickrent, D.L. and Petersen, G. 2024. Plastome evolution in Santalales involves relaxed selection prior to loss of *ndh* genes and major boundary shifts of the inverted repeat, Annals of Botany XX: 1-16. (https://doi.org/10.1093/aob/mcae145) [To better understand plastome evolution in the sandalwood order, representatives from early diverging families were sequenced. The functional loss of all plastid ndh genes was confirmed in the parasites as well as Aptandraceae whose trophic status remains to be determined. This work also supports the repeated transfer of plastid *inf*A to the nuclear genome.]

Egger, J.M and P. Excoffier. 2024. Resurrection of *Orthocarpus erianthus* var. *gratiosus* and its tranfer to *Triphysaria* (Orobanchaceae). Phytoneuron 6: 1–22. [*O. erianthus var. gratiosus* is re-assigned to *T. eriantha*.]

Eisawi, E., Clabrese, G.J., Boari, A. and Vurro, M. 2024. Plant extracts to manage the parasitic weed branched broomrape (*Phelipanche ramosa*). Phytopathologia Mediterranea 63(2): 223–232. (https://www.researchgate.net/publication/385243666) [An extract of *Olea europea* reduced lengths of germ tubes during P. ramosa seed germination, and extracts of *Bidens bipinnata* and *Dittrichia viscosa* gve very encouraging results in reducing seed germination rates.]

Elias, R.B., Moura, M., Roxo, G., Silva L.B., Pavão,D.C., Resendes, R., Pereira, F. and Nickrent, D. 2024. *Arceuthobium* species (Viscaceae) parasitizing an angiosperm: the unique case of *A. azoricum* in the Azores Islands. Plant Disease 108(8): (https://doi.org/10.1094/PDIS-09-23-1909-SC) [This dwarf mistletoe typically parasitizes *Juniperus brevifolia*, however, one population was discovered on Pico Island parasitic on *Erica azorica* (Ericaceae). This is the first bona fide record of *Arceuthobium* on an angiosperm.]

Fadini, R.F., Caires, C.S., Dettke, G.A. Menezes, O.T. and Fonturbel, F.E. 2024. Conservation opportunities for rare and endemic tropical mistletoes. Flora 17: (https://doi.org/10.1016/j.flora.2024.152555) [Discussing conservation: i) why? – reviewing their value to the ecosystem; ii) what? – noting those at greater risk than others; and iii) how? – providing practical recommendations for conserving endemic and rare mistletoes, especially those in Brazil.]

Fang, L. and 14 others. 2024. Chromosome-level genome assembly of *Pedicularis kansuensis* illuminates genome evolution of facultative parasitic plant. Molecular Ecology Resources 24(5): (https://doi.org/10.1111/1755-0998.13966) [Reporting the genome of *P. kansuensis* to be the largest among parasitic plants with 42,782 genes, and including 9 unique horizontal gene transfers.

Fernández-Melero, B. and 9 others. 2024. Development and characterization of a new sunflower source of resistance to race G of *Orobanche cumana* Wallr. derived from *Helianthus anomalus*. Theoretical and Applied Genetics 137(56): (https://doi.org/10.1007/s00122-024-04558-4) [A new Or_{Anom1} gene introgressed in cultivated sunflower from wild *Helianthus anomalus* confers late post-attachment resistance to *Orobanche cumana* race G and maps to a target interval in Chromosome 4 where two receptor-like kinases (RLKs) have been identified in the *H. anomalus* genome as putative candidates.]

Fontúrbel, F.E., González-Ancin, H. and Vega-Retter, C. 2024. Effects of selective logging on genetic diversity and population structure of a keystone mistletoe. Population Ecology 66(2): 86-92. (https://doi.org/10.1002/1438-390X.12170) [A detailed study on *Tristerix corymbosus.* Showing that that selective logging increases allelic richness and inbreeding, while inbreeding increased with selective logging intensity, and heterozygosity decreased with abundance of the seed disperser *Dromiciops gliroides*.]

Galván-González, L.G., Cerros-Tlatilpa, R., Espejo-Serna, A., & Steinmann, V.W. 2024. Phylogenetic relationships of the genera *Cladocolea* and *Struthanthus* (Loranthaceae) with emphasis on the Mexican species. Systematic Botany 49: 396-411. (https://doi.org/10.1600/036364424X17194277229601) [Nuclear ITS and plastid matK and trnL-F sequences were used to generate a molecular phylogeny of representatives of these two genera. Both *Cladocolea* and *Struthanthus* are polyphyletic requiring new combinations.]

Garcia, M. 2024. *Cuscuta europea* (European dodder). CABI Compendium: (https://www.cabidigitallibrary.org/doi/pdf/10.1079/cabicompendium.17113) An up-to-date compilation of detailed information on [*C. europaea*.)

Garcia, M. 2024. *Cuscuta approximata* (smallseed alfalfa dodder) European dodder). CABI Compendium: (https://www.cabidigitallibrary.org/doi/pdf/10.1079/cabicompendium.113694) [An up-to-date compilation of detailed information on *C. approximate*.]

García, M.A., Mucina, L. and Nickrent, D.L. 2024. A tough nutlet to crack: Resolving the phylogeny of *Thesium* (Thesiaceae), the largest genus in Santalales. Taxon 73(1): 190-236. (https://doi.org/10.1002/tax.13123) [A molecular phylogeny that included ca. 200 or the 350 species in the genus was used to assess the usefulness of taxonomic characters and biogeographical relationships in the genus.]

Garcia, M.A., Muina, L. and Nickrent, D.L. 2024. A tough nutlet to crack: Resolving the phylogeny of *Thesium* (Thesiaceae), the largest genus in Santalales. Taxon 73(1): 190-236. (https://doi.org/10.1002/tax.13123) [Presenting a hypothesis of the biogeographical history of the *Thesium* genus, with 350 species, based on molecular phylogeny.]

Gibot-Leclerc, S., Dessaint, F., Connault, M. and Peronne, R. 2024. Can amino acids be used to inhibit germination or deplete the soil seedbank of *Phelipanche ramosa* (L.) Pomel? Journal of Diseases and Protection 131: 91-99. (https://doi.org/10.1007/s41348-023-00797-7) [Reporting a strong inhibitory effect of arginine, lysine, phenylalanine and tryptophan on the germination of *O. ramosa*, temporary for arginine and lysine, but permanent for phenylalanine and tryptophan.]

Glogov, P.S. 2024. Parasitic planta in the Bulgarian flora. Journal of Science 53: (https://doi.org/10.5281/zenodo.11477680) [Recording 89 parasitic species from 18 genera in 6 families.]

Gonzalez, A.M., Romero, M.F. and Sato, H.A., 2024. Exploring hidden connections: endophytic system and flower meristem development of *Pilostyles berteroi* (Apodanthaceae) and interaction with its host *Adesmia trijuga* (Fabaceae). Plants, 3(21): 3010. ()https://doi.org/10.3390/plants13213010)

Grandjean, C. and 13 others. 2024. Pectin remodeling and involvement of AtPME3 in the parasitic plant–plant interaction, *Phelipanche ramosa–Arabidospis thaliana.* Plants 13(15): (https://doi.org/10.3390/plants13152168)

Gressel, J., Mbogo, P, Kanampiu and Christou, P. 20204. Maize yields have stagnated in sub-Sahara Africa: a possible transgenic solution to weed, pathogen and insect constraints. Pest Management Science 80(9): 4156-4162. (https://doi.org/10.1002/ps.8224) [Proposing that the solution is to simultaneously engineer multiple traits into one genetic locus – 'dominantly inherited multi-pest resistance trait single locus can be bred simply into locally adapted, elite high-yielding material, and would be valuable for farmers, vastly increasing maize yields, and allowing for more than regional maize sufficiency.']

Hatt, S.A., Thorogood, C.J., Bolin, J.F., Musselman, L.J., Cameron, D.D. and Grace, O.M. 2024. A taxonomic revision of the genus *Hydnora* (Hydnoraceae). Kew Bulletin 79(3) 459-514: (Hatt_et_al_2024_A_taxonomic_revision.pdf **) [This, the first detailed monograph of the genus since 1935, contains detailed descriptions, nomenclature, photographs, distribution maps, host ranges,**

conservation concerns, and ethnobotanical information for the 10 species.]

Hayrapetyan, A., Sonyan, H., Muradyan, A. 2024. Palynological studies of some species of the genus *Cuscuta* with emphasis on taxonomy. Acta Palaeobotanica 64(1): 60-74. (https://doi.org/10.35535/acpa-2024-0005) [A detailed study of pollen morphology, indicating 3 main types of ornamentation, corresponding to some extent to the main taxonomic groups, but failing to provide the basis of a detailed key.]

Hegazi, E. and 12 others. 2024. Effect of intercropping by flax, radish and fenugreek on faba bean, *Vicia faba* L., production and reduction of *Orobanche crenata* Forsk seed bank. Agriculture, Forestry and Fisheries 123(2): 52-59. (https://doi.org/10.11648/j.aff.20241302.15) [Intercropping with flax reduced infestation by *O. crenata* and increased crop yield.]

*Helmstetter, A.J. and 14 others. 2024. Towards a phylogenomic classification of Magnoliidae. bioRxiv: (https://doi.org/10.1101/2024.01.09.574948) [Providing an updated phylogenetic classification for Magnoliidae, recognizing 21 families, summarizing previously established subfamilies and tribes, and describing new tribes for Myristicaceae.]

Ibe, A.C. 2024. Comparative analysis of strigolactone production in bambara groundnut and cowpea genotypes. Akwapoly Journal of Communication and Scientific Research (APJOCASR) 8(1): https://doi.org/10.60787/apjocasr.Vol8no1.24 [Levels of orobanchol and orobanchyl acetate secreted varied significantly between 12 bambara genotypes – lowest in DodR. They stimulated *Alectra vogelli* but not *Striga gesnerioideds.*]

*Ibiapino, A., Urdampilleta, J., García, M.A., Pedrosa-Harand,A., Stefanović, S. and Costea, M. 20124. Cytogenetic comparison of *Cuscuta psorothamnensis* and *C. veatchii* (Convolvulaceae), two species originated from recurrent hybridization between the same diploid parents. bioRxiv: (https://doi.org/10.1101/2024.04.15.589596) [The allopolyploids, *C. veatchii* and *C. psorothamnensis* (2*n* = 60), originated from two independent reticulation events between the diploids, *C. denticulata* and *C. nevadensis* (2*n* = 30). The allopolyploids are morphologically similar, but differ in their geographical distribution and host specificity. Presenting cytogenetic comparison allowing an understanding of the processes involved in the emergence of new polyploid species by hybridization.]

Ievinsh, G. 2024. Biology of hemiparasitic *Rhinanthus* species in the context of grassland biodiversity. Land 13(6): 814. (https://doi.org/10.3390/land13060814) [A substantial review of the topic.]

*Inoue, M., Xie,, X. and Yoneyama Kaori 2023 .Barley is a potential trap crop for root parasitic weeds broomrape. bioRxiv: (https://doi.org/10.1101/2024.10.22.619574) [Finding that certain varieties of barley are potential trap crops for control of *Orobnche/Phelipanche* spp.]

Kaundun, S.S. and 6 others. 2024. First case of evolved herbicide resistance in the holoparasite sunflower broomrape, *Orobanche cumana* Wallr. Frontiers in Plant Science 15: (https://doi.org/10.3389/fpls.2024.1420009) [Reporting 2 populations of *O. cumana* races G and G+ resistant to imazamox in Greece, following repeated use of the herbicide on herbicide resistant sunflowers.]

Kawa, D. and 19 others. 2024. The soil microbiome modulates the sorghum root metabolome and cellular traits with a concomitant reduction of *Strig*a infection Cell Reports 43(4): (https://doi.org/10.1016/j.celrep.2024.113971) [Showing that a typical soil microbiome may be reducing the severity of *Striga* infestation, and identifying the various mechanisms involved including increased endodermal suberisation by *Arthrobacter* strain VK49 and degradation of syringic acid by *Pseuudomonas* strain VK46 leading to reduced haustorium formation.]

Kawada, K., Takahashi, I., Takei, S., Nomura, A., Seto, Y. and Fukui, K. 2024. The evaluation of debranone series strigolactone agonists for germination stimulants in *Orobanche* species. Journal of Agricultural and Food Chemistry , 72, 35, 19517–19525: (https://doi.org/10.1021/acs.jafc.4c05797) [Debranones with electron-withdrawing substituents at the 2,4- or 2,6-position strongly induced the germination of *O. minor*. 5-(2-fluoro-4-nitrophenoxy)-3-methylfuran-2(5*H*)-one (test compound 61) induced germination comparable to that with GR24.]

Kenaley, S.C.and Mathiesen, R.L. 2024. Perspectives on the reclassification of taxa in the *Arceuthobium campylopodum* complex (Viscaceae). Botany 102(3): (https://doi.org/10.1139/cjb-2023-0113) [Disputing a recent reclassification of section *A. campylopodium* by Flora of North America (FNA), and contending that 12 taxa now classified as sub-species of *A. campylopodium* by FNA deserve specific status.]

Kim, B. and 10 others. 2024. Chromosome-level genome assembly of Korean holoparasitic plants*, Orobanche coerulescens*. Scientific Data 11:714: (10.1038/s41597-024-03207-1) Results from repeat annotation revealed that 86.3% of the genome consisted of repeat elements, and 29,395 protein-coding genes were annotated.]

Knotková, K., Cempírková, A. and Těšitel, J. 2024. Native root hemiparasites form haustorial attachments with multiple invasive and expansive species. Flora 319: (https://doi.org/10.1016/j.flora.2024.152584) [Confirming that *Melampyrum arvense*, *Rhinanthus alectorolophus* and *Odontites vernus* subsp. s*erotinus* were all able to parasitise a range of invasive species and could therefore be of interest for controlling their importance.]

Kokobugata, G., Kakishema, S., Chung, K-F., Ishii, C. and Yokota, M. 2024. Reappraisal of intraspecific taxonomy of *Cassytha filiformis* (Lauraceae). Acta Phytotaxanomica et Geobotanica 75(2): 85-96(https://doi.org/10.18942/apg.202408) [Re-affirming the distinction of *C. filiformis* var. *filiformis* from *C. filiformis* var. *duripraticola* in Japan and Taiwan, based on hairs on the stems.]

Komada, N. and 9 others. 2024. A checklist of showy mistletoe (Santalales, Loranthaceae) of Lambir Hills. Tropics 33(1): 57-71. ([DOI : 10.3759/tropics.MS23-08) [Field surveys from 2016 to 2022 recorded 21 species in 10 genera of Loranthaceae, including *Lepidaria vaginata*, previously known only from its type locality, Mt. Matang.]

Koura, A.A. and 9 others. 2024. Genome-wide association studies reveal new candidate genes associated with resistance to *Striga gesneroides* in Cowpea [*Vigna unguiculata* (L.) Walp.] accessions from sub-Saharan Africa. Ecological Genetics and genomics 37: (https://doi.org/10.1016/j.egg.2024.100267) [188 cowpea accessions genotyped using the medium-density genotyping of the Diversity Arrays Technology sequencing platform to obtain marker information,revealing candidate genes such as ubiquitin ligase activity, cell wall reinforcement protein, and pathogenesis-related protein.]

Kuijer, H.N.J. and 22 others. 2024. Chromosome-scale pearl millet genomes reveal CLAMT1b as key determinant of strigolactone pattern and *Striga* susceptibility. Nature Communications 15(1): (https://doi.org/10.1038/s41467-024-51189-w)

Latvis, M., Souza, V.C., T, D., Soltis, P. and Soltis, D. 2024. An evolutionary framework for *Agalinis* (Orobanchaceae; the false foxgloves) reveals a rapid South American radiation that includes *Esterhazya*. Systematic Botany 49(2): 455-481. (https://doi.org/10.1600/036364424X17095905880222)

Le, C.T., Lu, L., Nguyen, V.D., Chen, Z., Omollo, W.C. and Liu, B. 2024. Phylogeny, character evolution and historical biogeography of Scurrulinae (Loranthaceae): new insights into the circumscription of the genus *Taxillus.* BMC Plant Biology 24**:** 440. (https://doi.org/10.1186/s12870-024-05126-0) [Results strongly support the non-monophyletic of section Scurrulinae, with *Phyllodesmis* is recognized as a separate genus from its allies *Taxillus* and *Scurrula* based on the results from molecular data and morphological character reconstruction.

Lee, C., Choi, B., Park, E. and Yim, E. 2024. Incredible host diversity and regional potential distribution of an oriental parasitic plant (*Taxillus yadoriki*). Forests: 15(5): 799. (https://doi.org/10.3390/f15050799) [Noting the wide host range of *T. yadoriki* - 40 species, mainly below 200 m. elevation especially, *Cryptomeria japonica* and *Litsea japonica*.]

Legesse, Z., Tesso, B. and Tadesse, T. 2024. Bio-assay screening of sorghum [*Sorghum bicolor* (L.) Moench] inbred lines for resistance to Striga [*Striga hermonthic*a (Del.)] in Ethiopia. Asian Journal of Research and Review in Agriculture 6(1):1-13. [Using an agar gel in Petri dishes to assess maximum germination distances of *S. hermonthica* from roots of a range of sorghum varieties and selecting 10 varieties for further assessment.]

Leman, J.K.H., Brun, G., Rohwedder, and Wicke, S. 2024. Parasitic success of the pathogenic plant *Phelipanche ramosa* (L.) Pomel. (Orobanchaceae) differs in some re-infected versus naïve tomato cultivars. Weed Research: (https://doi.org/10.1111/wre.12634) [Some tomatoes, already infected by *P. ramosa* showed greater resistance to subsequent infection, thanks to up-regulation of several peroxide genes.]

Leso, M., Kokla, A., Feng, M., and Melnyk, C.W. 2024. Pectin modifications promote haustoria development in the parasitic plant *Phtheirospermum japonicum*. Plant Physiology 194(1): 229–242. (https://doi.org/10.1093/plphys/kiad343)

Li, J., Pan, T., Xu, L., Najeeb, U., Farooq, M.A. and Huang, Q. 2024. Monitoring of parasite *Orobanche cumana* using Vis–NIR hyperspectral imaging combining with physio-biochemical parameters on host crop *Helianthus annuus*. Plant Cell Reports 43(220): (https://doi.org/10.1007/s00299-024-03298-5) [Extreme learning machine (ELM) and convolutional neural network (CNN) models using 3-band images were built and were 95% accurate in detecting earlyt stages ods of *O. cumana* unfestation of sunflower.]

Liu, G.-H., Zuo, Y.-W., Shan, Y., Yu, J., Li, J.-X., Chen, Y., Gong, X.-Y., and Liao, X.-M. 2024. Structural analysis of the mitochondrial genome of *Santalum album* reveals a complex branched configuration. Genomics116(5): (https://doi.org/10.1016/j.ygeno.2024.110935) [The branched structure consists of three contigs of different lengths encoding 34 protein genes, 26 tRNAs and a large portion (6.3%) of plastid DNA.]

López, A.M. and Pérez-Haase, A. 2024. *Orobanche salviae* (Orobanchaceae), new to the flora of the Iberian Peninsula. Mediterranean Botany 45(1): (https://doi.org/10.5209/mbot.86862)

Lu, C., Yang, H., Qin, W. and Xu, H. 2024. *Thismia jinzun* (*Thismiaceae*)*,* a new species of *Thismia* gfenus from Hainan Island, China. Phytotaxa 664(4): (10.11646/phytotaxa.664.4.4)

Lüth, P., Nzioki, HS. and Baker, C.S. 2024. A microbial bioherbicide for *Striga hermonthica* control: production, development, and effectiveness of a seed coating agent. Pest Management Science 80(1): 149-155. (https://doi.org/10.1002/ps.7522) [Reporting a promising new way to use *Fusarium* strain DSM 33471, more cheaply and easily than as used so far in the 'thoothpick' project to control *S. hermonthica.* Describing the formulation of a dried powder and its application as a seed dressing on maize. Recording ca. 90% reduction of *Striga* emergence and corresponding yield increase.]

Merckx, V.S.F.T. and 7 others. 2024. Mycoheterotrophy in the wood-wide web. Nature Plants 10: 710–718. (https://doi.org/10.1038/s41477-024-01677-0) [Proposing a continuum of carbon transfer options within common mycorrhizal networks, and discussing how knowledge on the biology of mycoheterotrophic plants can be instrumental for the study of mycorrhizal-mediated transfers between plants.]

Mesfin Abate, Getenet Atnafu, Berhanu Alemu, Yenetila Alameneh, Abiot Molla, Messeret Taddese and Gizaw Gebremariam. 2024. Evaluation of Push-pull technology for pest and soil fertility management on maize in north western Ethiopia. Italian Journal of Agromony 19(2): (https://doi.org/10.1016/j.ijagro.2024.100012) [Use of the push-pull technology involving interplanting with *Desmodium intortum* reduced *S. hermonthica* from 22/m^2 to 4/m^2 and increased maize yields from 3.2 to 5.3 t/ha. Soil fertility was also enhanced.]

Midgley, J. 2024. Epi-parasitic mistletoes don't parasitise their host's host and this supports the immunity hypothesis for host choice. African Journal of Ecology 62(1): (https://doi.org/10.1111/aje.13212) [Hypothesising that epi-parasites would have to transpire faster than their host mistletoe, which must transpire faster than its host. Therefore, epi-parasites should be able to parasitise their host's host. But observations on South Arican *Viscum goetzei* and *V. loranthicola* indicated otherwise.]

Mlambo, D. and Mundava, J. 2024. Mistletoe-infected trees facilitate invasion of the alien shrub *Lantana camara* in a semi-arid African savanna. Journal of Arid Environments 224: (https://doi.org/10.1016/j.jaridenv.2024.105227) [In Zimbabwe, N-fixing tree species including *Vachellia, Albizia* and *Senegalia* spp. infested by mistletoes *Erianthemum ngamicum, Plicosepalus kalachariensis* and *Viscum verrucosum*, facilitated infestation of invasive *Lantana camara* due to a combination of nutrient-rich leaf fall, and droppings from seed-feeding birds.]

Moeini, M.M., Alimoradi, A., Abadi, N.A., Veisi, M. and Fernández-Aparicio, M. 2024. Screening candidate plant species as trap and catch crops for the control of broomrape (*Phelipanche mutelii*) in rapeseed (*Brassica napus*). Journal of the Saudi Society of Agricultural Sciences, 23(1): 1-10. (https://doi.org/10.1016/j.jssas.2023.08.002) [Hairy vetch as a catch crop caused over 80% reduction of *P. mutelii* and over 70% increase in crop dry matter. Berseem clover as a trap crop in rotation with rapeseed reduced *P. mutelii*, by 70% and increased the dry biomass of rapeseed by 60%.]

Mohammed, I.A., Hassan, M. and Aboulela, M. 2024. New hosts and diagnostic characteristics of *Orobanche crenata* (Orobanchaceae) in Egypt. Acta Botanica Croatica 83 (1), 32–42. (https://hrcak.srce.hr/file/447383) [Recording infestations on *Arctotis fastuosa, Callistephus chinensis Ammi majus, Lactuca serriola, Melilotus indicus, Carthamus tinctorius* and *Tropaeolum majus*.]

*Molina, J. and 17 others. 2024. Microbes and metabolites of *Tetrastigma*: deciphering the ecology of host choice of the plant parasite and world's largest flower, *Rafflesia* (Rafflesiaceae). SSRN: (https://ssrn.com/abstract=5005221) [The enrichment of gallic acid derivatives, adenine, and certain gall-associated bacteria suggests that *Rafflesia* buds may function similarly to plant galls, manipulating host tissues to support its own reproductive development.]

Morales-Saldaña, S., Villafán, E., Ramírez-Barahona, S., Ibarra-Laclette, E., & Ornelas, J. F. 2024. The complete chloroplast genome sequence of *Psittacanthus schiedeanus* (Cham. & Schltdl.) G.Don. (Santalales: Loranthaceae), the first plastome of a mistletoe species in the Psittacantheae tribe. Mitochondrial DNA Part B, 9(1), 5–10. (https://doi.org/10.1080/23802359.2023.2298078) [The plastome is 122,586 bp long, contains 112 genes and displays the typical quadripartite structure seen in other Loranthaceae.]

Musango, R and 6 others. 2024. Interactions of Bambara groundnut (*Vigna subterranean* (L) Verdc) genotypes and phosphorus fertilizer rates in controlling *Alectra vogelii.* Cogent Food & Agriculture 10(1): (https://doi.org/10.1080/23311932.2024.2416499) [Recording the benefits of 40Kg.ha P n bambara infested by *A. vogelii*.]

Narimani, M., Pourezza, A., Moghimi, A., Mesgaran, M., Faraipoor, P., and Jafarbilu, H. 2024. Drone-based multispectral imaging and deep learning for timely detection of branched broomrape in tomato farms Proceedings Volume 13053, Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping IX 1305304 (https://doi.org/10.1117/12.3021219) [Long Short-Term Memory (LSTM) deep learning networks with and without Synthetic Minority Over-sampling Technique (SMOTE) were effective in identifying *Phelipanhe ramos* in tomato..]

Nogami, R., Nagata, M., Imada, R., Kai, K., Kwaguchi, T and Tani, S. 2024.Cycloheximide in the nanomolar range inhibits seed germination of *Orobanche minor.* Journal of Pesticide Science 49(1): 22-30. (https://doi.org/10.1584/jpestics.D23-038) [Isolating a *Streptomyces* sp. no. 226 which inhibited *O. minor* seed germination without significantly affecting the germination of *Trifolium pratense,* and establishing that the active compound is cycloheximide, active at very low doses.]

Obico, J.J.A., Sedricke, R., Lapuz, C., Barcelona, J.F. and Pelser, P.B. 2024. What explains the high island endemicity of Philippine *Rafflesia*? A species distribution modeling analysis of three threatened parasitic plant species and their hosts. American Journal of Botany 111(1): (https://doi.org/10.1002/ajb2.16267) [Results suggest that limited inter-island dispersibility and/or specific environmental requirements are likely responsible for the current pattern of island endemicity of the three *Rafflesia* species, *R. lagascae*, *R. lobata*, and *R. speciosa* rather than environmental requirements of their *Tetrastigma* host species.]

Odero, C.O., Kibet, W., Oduor, R.O., Dida, M. and Runo, S. 2024. Pre- and post-attachment resistance response of popular western Kenya maize hybrids to parasitism by witchweed (*Striga*). Weed Research: (https://doi.org/10.1111/wre.12663) [Among 16 maize hybrids, H614D and H629 exhibit both pre- and post-attachment resistance.]

Oliver, A.B., Kazimierski, L.D., Amico, G.C. and Morales, J.M. 2024. Habitat selection of the arboreal marsupial *Dromiciops gliroides* and potential effects on the seed dispersal of the mistletoe *Tristerix corymbosus*. Mammalian Biology 104: 489-497. (https://doi.org/10.1007/s42991-024-00422-6) [Concluding that dispersal by *D. gliroides* favours the population of *T.corymbosus*.]

Omoigui, L.O., Kamara, A.Y., Shaibu, A.S. and Iolarmen., T. 2024. Registration of 'UAM14-122-17-7 and UAM14-123-18-3' cowpea cultivars with high-yield, resistance to *Striga*, and large seed size with brown colour. Genetic Resources and Crop Evolution 71:455–469 (https://doi.org/10.1007/s10722-023-01638-0) [Two new varieties released for use in Nigeria.]

Ornelas, J.F., Galicia, S., Ruiz-Sanchez, E., Lara, C., Molina-Freaner, F., Vásquez-Aguilar, A.A., Gándara, E., Angulo, D.F., Vovides, A.P., and Sosa, V. 2024. Comparative fruit morphology of nine *Psittacanthus* Mart. (Santalales: Loranthaceae) mistletoe species occurring in Mexico. Flora 319: (https://doi.org/10.1016/j.flora.2024.152585) [Fruits varied in size, shape, color and cotyledon number.]

Ornelas, J.F. and 10 others. 2024. Insights into mistletoe seed germination: A study of hemiparasitic *Psittacanthus* Mart. (Santalales: Loranthaceae) mistletoes. Flora 316: (https://doi.org/10.1016/j.flora.2024.152527) [Steps in the seed germination process were documented in nine species. Cotyledon number was negatively associated with mean germination time and uncertainly but positively associated with mean germination rate and speed coefficient.]

Osman, N.Y. Ahmad-Hamdani, M.S., Oslan, S.N., Zulperi, D.M., Mohd Hashim. A, and Saidi, N.B. 2024. Bacteria as potential biocontrol agents for managing purple witchweed (*Striga hermonthica*) in grain sorghum. Weed Science 2024:1-8: (doi:10.1017/wsc.2024.42) [A study of 13 bacteria suggested *Streptomyces morookaensis* NRRL B-12429 had potentially useful ability to inhibit *S. hermonthica* germination.]

Paniagua-Zambrana, N.Y., Bussmann, R.W. and Kikvidze, Z. 2024. *Viscum album* L. Santalaceae. In: Bussmann, R.W. *et al.* (eds) Ethnobotany of the Mountain Regions of Eastern Europe. Ethnobotany of Mountain Regions. Springer, Cham. pp. 3-43. (https://doi.org/10.1007/978-3-030-98744-2_307-1)

Parra-Tabla, V., Tun-Garrido, J., García-Franco, J. and Martinez, M.L. 2024. The recent expansion of the invasive hemiparasitic plant *Cassytha filiformis* and the reciprocal effect with its main hosts. Biological Invasions 26:535–547. (https://doi.org/10.1007/s10530-023-03192-3) [*C. filiformis* in Yucatan, Mexico parasitises 15 species. *Suriana maritima*, *Scaevola plumieri*, and *Tournefortia gnaphalodes* are most affected and suffer some reduction of reproductive success.]

Pillon, Y., Gotty, K., and Lepschi, B. 2023. A revised generic circumscription of *Exocarpos* (Santalaceae), including the transfer of *Omphacomeria* to *Exocarpos*. Muelleria 42:9-14. [The western Australian endemic monotypic genus Omphacomeria and the New Caledonian endemic monotypic genus *Elaphanthera* were both nested in *Exocarpos* following a molecular phylogenetic study, thus both were transferred to *Exocarpos*.]

Piwowarczyk, R., Pedraja, O.S., Fateryga, A.V., Svirin, S.A., and Murtazaliev, R.A. 2024. *Orobanche dagestanica* (Orobanchaceae): a new species from the Greater Caucasus. Phytotaxa 653(1): 67-78. (10.11646/phytotaxa.653.1.5) [*O. dagestanica,* described from Dagestan in Russia growing in alpine shale scree slopes parasitic on *Lophiolepis* spp.(Asteraceae). Belonging to *Orobanche* subsect. *Curvatae*, and specifically to *O.* ser. *Krylowianae*, however it is distinct from all other taxa in this group.]

Purti, N., Singh, L.J. and Pandey, A.K. 2024. New mistletoe host for the butterfly herbivory in an island ecosystem. Journal of Asia-Pacific Biodiversity 2024: (https://doi.org/10.1016/j.japb.2024.05.009) [*Dendrophthoe curvata, D. glabrescens, D. longensi* and *Macrosolen andamanensis* are recorded for the first time as host plants for the larvae of *Delias hyparete indica* of Pieridae and *Tajuria cippus cippus* of Lycaenida in the Andaman and Nicobar Islands, India.]

Rahman, S., Kabir, A.K.M.,Iqbal, M. and Kamal, M.M. 2024. Assessment of losses of sugarcane caused by *Striga densiflora.* Bangladesh Journal of Sugarcane, 10: 111-113. [Reporting increased importance of *S. densiflora* in sugar cane in Bangladesh and conducting a field experiment suggesting losses can be over 90%.]

Rocamundi, N., Miller, M.A., Maubecin, C.C., Martel, C., Moré, M., Marvaldi, and Cocucci, A.A. 2024. While *Prosopanche* (Hydnoraceae) flowers gently heat: mutualistic pollination relationships among the perianth-bearing Piperales, Botanical Journal of the Linnean Society 204(3):199–211. (https://doi.org/10.1093/botlinnean/boad050) [Confirming the dependence of *P. americana* on certain *Hydnoribius* weevils, and increased heat in the female flowers of 8^{O}C, for pollination.]

Rosli, R., Tennakoon, K.U. and Metali, F. 2024. Ecophysiological responses of native and introduced coastal tree species parasitized by *Cassytha filiformis* in Brunei. Plant-Environment Interactions 5(4): (https://doi.org/10.1002/pei3.70000) [Study of photosynthesis and mineral content in a number of host trees suggest that *C. filiformis* does not significantly affect their performance.]

Scalon, M.C., Heilmeier, H. and Rossatto, D.R. 2024. Plant-plant parasitism: trends in the last 50 years and a call for papers for a special issue in Flora. Flora 310: (https://doi.org/10.1016/j.flora.2023.152438) [Inviting contributions to a forthcoming Virtual Special Issue of Flora – Morphology, Distribution, Functional Ecology of Plants on 'Plant Parasitism: Ecology, Evolution and Functional Aspects'.]

Sengupta, R. and Dash, S.S. 2024. A new species of *Phtheirospermum* (Orobanchaceae) from Mizoram, an Indo–Burma biodiversity hotspot in India. Phytotaxa 645(2): 172-178. [*P. lushaiorum* is described from dense forest in NE India. (see also Press Reports above.)]

Shaw, D.C., Teixeira-Costa, L., Watson, D. M. and. Shamoun, S.F. 2024. Introduction to the special issue on parasitic flowering plants in forests. Botany. 102(3): 56-57. https://doi.org/10.1139/cjb-2024-0011 [Introduction to 8 papers. See items under Missarov, Kenaley, Pincheira, Flanders, Ornelas, Holmes, Watson, Teixeira-Costa.]

Shimels, M.Z., Rendine, S., Ruyter-Spira, C., Rich, P.J., Gebisa Ejeta and Bouwmeester, H.J. 2024. The role of strigolactone structural diversity in the host specificity and control of *Striga*, a major constraint to sub-Saharan agriculture. Plants, People, Planet: https://doi.org/10.1002/ppp3.10549 [A review, noting that sorghum *lgs1* genotypes with a mutation in a sulfotransferase (SbSOT4A), for example, exude orobanchol and are resistant to *Striga*, while 5-deoxystrigol is the major strigolactone exuded by susceptible cultivars with wild type SbSOT4A.]

Sierra-Bacquero, P. and 10 others. 2024. Insights into the cashew production system in Guinea-Bissau: implications for agroecosystem sustainability. Frontiers in Sustainable Food Systems 8: (https://doi.org/10.3389/fsufs.2024.1439820) [Noting that 37% of cashew plantations in Guinea-Bissau are affected by *Tapinanthus banguensis* or other Loranthaceae.]

Silva, M.C. and 7 others. 2024. From leaves to the whole tree: mistletoe effects on the productivity, water relations, and demography of a Neotropical savanna tree. Austral Ecology 49(2): (https://doi.org/10.1111/aec.13461) [Studying the response of *Vochysia thyrsoidea* to infestation by *Psittacanthus robustus* and finding less damage than expected; infection did not affect key traits associated with resource conservativeness, such as leaf mass per area and carbon assimilation rates. However, zero growth and a 50% chance of mortality were estimated to occur in a minority of heavily infected trees.]

Şimşek, C. and 8 others. 2023. Development of resistance against broomrape (*Orobanche* spp., *Phelipanche* spp.) using CRISPR/-cas9 technology in tomato (*Solanum lycopersicum*)," 2nd International Molecular Plant Protection Congress , Bursa, Turkey, pp.52. (Homozygous deletion of 186 nucleotides in tomato led to resistance to *Phelipanche* sp.]

Solikin, S. 2024. Diversity and infestation of mistletoes in cultivation of sengon (*Falcataria moluccana* (Miq.) Barneby&J.W.Grimes) in Malang East Java Indonesia. IOP Conference Series: Earth and Environmental Science: 1312, 13th International Conference of Green Technology, October 2023, Malang, Indonesia. (DOI 10.1088/1755-1315/1312/1/012001) [*Scurrula atropurpurea* was the dominant mistletoe in cultivation of sengon, with *Viscum ovalifolium* also occurring.]

Soriano, I., Ibanez, N. and Nualart, N. 2024. Nomenclatural types of some Pyrenean and Iberian *Pedicularis* (Orobanchaceae) Botany Letters 171(2): 94-208. (https://doi.org/10.1080/23818107.2023.2270514) [Listing nomenclatural types for 20 *Pedicularis* taxa.]

Takei, S. and 7 others. 2024. Highly sensitive strigolactone perception by a divergent clade KAI2 receptor in a facultative root parasitic plant, *Phtheirospermum japonicum*. Plant And Cell Physiology p.pcae105: (https://doi.org/10.1093/pcp/pcae105) [Results suggest that the KAI2d clade SL receptors play a crucial role not only in obligate parasites but also in facultative parasitic plants.]

Tang, L. and 6 others. 2024. Comparative and phylogenetic analyses of Loranthaceae plastomes provide insights into the evolutionary trajectories of plastome degradation in hemiparasitic plants. BMC Plant Biology 24, 406. (https://doi.org/10.1186/s12870-024-05094-5) [Compared to closely related facultative root-parasites, Loranthaceae exhibits an elevated degree of plastome degradation, characterized by increased downsizing, gene loss, and pseudogenization, thereby providing empirical evidence supporting the theoretical expectation that evolution from facultative parasitism to obligate parasitism may result in a higher degree of plastome degradation.]

Taylor, T. and eleven others. 2024. Evaluating mechanisms of soil microbiome suppression of *Striga* infection in sorghum. Bio Protocols 14(17): (10.21769/BioProtoc.5058) [Describing a protocol providing a detailed description of the methods used in Kawa et al. 2024 – see above]

Temesgen Teressa. 2024. Witch weeds (*Striga* spp.) dissemination and infestation in Ethiopian: review article. American Journal of Plant Biology 9(1): 35-42. (10.11648/j.ajpb.20240902.12) [An up-to-date review, emphasising the continuing, increasing threat of *Striga* spp. in Ethiopia, currently estimated to cause ca. 25% crop loss.]

Tinoco-Domínguez, E., González-Elizondo, M.S. and Lira-Noriega, A. 2024. American mistletoes: a dataset of *Phoradendron* species and their hosts across their distribution range. Ecology 105(10): (https://doi.org/10.1002/ecy.4394) [This paper provides an updated compilation of 159 *Phoradendron* spp. and the hosts of each, with the purpose of making this database of interactions accessible for researchers to address questions at multiple scales and from disciplines as varied as biogeography, ecology, evolution, and epidemiology.]

*Tobias, A., Thorogood, C. and Malabrigo, P. 2024. *Rafflesia balatociana* (Rafflesiaceae), a new species from the Cordillera Central, Luzon, the Philippines. Authorea: (10.22541/au.171284469.94787507/v1) [*R. balatociana* is distinguished from its close relatives by a double-dentate disk rim and strap-shaped lacuna on the annulus interior. A key is provided., and a recommendation that *R. balatociana* should be classified as Critically Endangered.]

Tourneur, S., Combier, J-P., Plaza, S., Muños, S. and Delavault, P. 2024. microRNA-encoded peptides inhibit seed germination of the root parasitic plant *Orobanche cumana.* Plamts, People, Planet: (https://doi.org/10.1002/ppp3.10501) [Reporting that 39 members of the conserved miRNA repertoire of *O. cumana* were designed, synthesised, 11 of which strongly inhibited *O. cumana* seed germination.]

Tsuzuki, K., Suzuki, T., Kuruma, M., Nishiyama, K., Hayashi, K., Hagihara, S. and Seto, Y. 2024. Radicle growth regulation of root parasitic plants by auxin-related compounds. Plant and Cell Physiology: (https://doi.org/10.1101/2024.05.03.592385) [Finding that ISAA, synthetic auxins and tryptophan inhibited radical elongation in *Striga hermonthica* and *Orobanche minor* and that this inhibition was reversed by auxinole.]

Tubongbanua, R. M. J., Mendez, N. P. and Amorosa, V. B. 2024. Checklist of parasitic plants in Marilog District, Southern Philippines. Journal of Tropical Biology & Conservation (JTBC), 2: 30–39. (https://doi.org/10.51200/jtbc.v21i.5375) [Recording *Balanophora papuana*, *Amyema curranii*, *Amyema seriata* and *Decaisnina ovatifolia*, *Mitrastemon yamamotoi*, and *Christisonia schortechini; A. seriata* being the most frequent. Hosts identified.]

Tulu, U.T., Haileselassie, T., Abera, S. and Tessema, T. 2024. Screening and identification of potential *Striga* [*Striga hermonthica* (Del.)] suppressing rhizobacteria associated with sorghum [*Sorghum bicolor* (L.) Moench] in Northern Ethiopia. 2024. Technology in Agronomy 4(1): (10.48130/tia-0024-0008) [The most effective isolates, causing significant reduction in *S. hermonthica* germination belonged to the genera *Pseudomonas*, *Klebssiella*, *Bacillus* and *Entrobacter*.]

*Udandarao, N.J., Yamashita, Y., Ushima, R., Tsuchia, T. and Bessho-Uehara, K. 2024. Parasitic-plant parasite utilizes flowering pathways at unconventional stages to form stem-derived galls. bioRxiv: (https://doi.org/10.1101/2024.10.17.618901). [Results suggest that the weevil may activate the flowering pathway at unconventional stages, potentially rerouting the typical flowering cascade to influence gall development.]

Veronesi, C., Billard, E., Delavault, P., and Simier, P. 2024. (±)-Catechins inhibit prehaustorium formation in the parasitic weed *Phelipanche ramosa* and reduce tomato infestation. Pest Management Science: (https://doi.org/10.1002/ps.8472) [The results show that (±)-catechins have no effect on GR24-induced, nor on radicle elongation after germination, but strongly inhibit, at 10^{-4} and 10^{-5} M, prehaustorium formation in response to the haustorium-inducing factor, *cis/trans*-zeatin.]

Wallach, A., Matzrafi, M., Distelfeld, A., Nasser, A. and Eizenberg, H. 2024. Development and application of a bioassay for assessing the dissipation rate of the synthetic strigolactone GR24 in soil. Weed Research: (https://doi.org/10.1111/wre.12619) [Describing a bioassay technique and confirming that decay of GR24 within 24 hours depends on soil microflora.]

Wang, T. and 7 others. 2024. Complete chloroplast genomes and phylogenetic relationships of *Pedicularis chinensis* and *Pedicularis kansuensis*. Scientific Reports 14: (https://doi.org/10.1038/s41598-024-63815-0) [Phylogenetic analysis showed that *P. kansuensis* had the closest relationship with *P. oliveriana*, and *P. chinensis* had the closest relationship with *P. aschistorhyncha*.]

Wee, S.L., Tan, S.B., Tan, S.H. and Lee, B.K.B. 2024. Bud development, flower phenology and life history of holoparasitic *Rafflesia cantleyi*. Journal of Plant research 137:423-443. (https://doi.org/10.1007/s10265-024-01522-7) [Describing bud development of *R. cantleyi* and estimating its life cycle between 4.0 and 5.3 years.]

Wu, Y., Liu, R., Wang, W-J., Li, D-Z., Burgess, K., Yu, W.B. and Wang, H. 2024. Species discrimination in *Pedicularis* (Orobanchaceae) based on the chloroplast genome. Authorea: (DOI: 10.22541/au.172153162.28917098/v1)

Yakubu, M.N. and Price, A.H. 2024. Variability in *Striga* resistance among a collection of diverse rice cultivars. Rice Science: (https://doi.org/10.1016/j.rsci.2024.03.003) [Among 31 cultivars, 5 showed good resistance to *Striga hermonthica.*]

Yap, J.X., Tsuchiya, Y. 2024. Assessing seed germination response of parasitic plant *Striga hermonthica* with small-molecule probes. In: Kawakami, N., Sato, K. (eds) Seed Dormancy. Methods in Molecular Biology, vol 2830: 61-62. Humana, New York, NY. (https://doi.org/10.1007/978-1-0716-3965-8_5) [Describing a high-throughput germination assay and a method for visualizing in vivo strigolactone receptor functions with a fluorogenic probe.]

Yonli, D., Traore, H. and Kountche, B.A. 2024. Weed and *Striga* management in pearl millet systems in sub-saharan Africa. In: Tonapi, V.A. *et al.* (eds) Pearl Millet in the 21st Century. Springer, Singapore. Pp. 395-414. (https://doi.org/10.1007/978-981-99-5890-0_15) [A review, noting the importance of *Striga asiatica* and *S. hermonthica*, and also *Buchnera hispida* as parasitic weeds of pearl millet and suggesting priority research approaches.]

Yue, X., Miao, N., Ma, R., Junyi, L.I., Qiong, T. and Panpan, X. 2024. (Studies on biomass allocation of a common mistletoe species, *Taxillus nigrans*, in Southwest China.) (in Chinese) Journal of Tropical and Sub-tropical Botany 32(1): 66-74. (DOI:10.11926/jtsb.4705) [Concluding that the unique biomass allocation patterns and allometric growth characteristics of *T. nigrans* were not consistent with allometric biomass partitioning theory but were beneficial to its adaptation to parasitic life.]

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