



SICAMM

Societas Internationalis pro Conservatione Apis melliferae melliferae
International Association for the Protection of the European Dark Bee



30-year Anniversary



SICAMM conference 2025

March 27-30 2025 | * Stavanger, Norway





SICAMM Conference Programme 2025

Version of 20th March 2025, <https://www.sicamm.org>



Wednesday 26 March 2025 (on own organization)

- **City Tour:** <https://www.visitnorway.com/places-to-go/fjord-norway/the-stavanger-region/listings-stavanger/stavanger-tourist-information-office/1843/>
- **Social dinner:** <https://www.edgeofnorway.com/en/food-and-drink>

Thursday 27 March 2025 – registration opens at 10 am

1. Opening Ceremony

Time	Lecture and Presenter	
11:00	11:10	Welcome to SICAMM Conference, SICAMM Main Board
11:10	11:20	Welcome to Norway, Norwegian Conference Team

2. Practical beekeeping with dark honey bees

11:20	12:10	1. Bee Improvement from a mixed population, Jo Widdicombe, UK
12:10	12:30	2. Norwegian Amm and SICAMM history, Nils Drivdal, NO
12:30	14:00	Lunch

2. Bee breeding of the dark honey bee

14:00	14:50	3. How to manage the treasure of genetic variation in black bees, Prof. Jacques van Alphen, NL
14:50	15:40	4. Bees and queens: Easy ways of producing them, Roger Patterson, UK, president of BIBBA
15:40	16:10	Coffee, Tea and Snacks



3. Dark honey bee conservation work in Fennoscandia and the Baltic States

16:10	16:25	5. Norway, Lars Kirkerud
16:25	16:40	6. Sweden, Ingvar Arvidsson
16:40	16:55	7. Denmark, Troels Demant
16:55	17:10	8. Finland, Markku Pöyhönen
17:10	17:25	9. Lithuania, Dr. Laima Blažytė-Čereškienė
Poster		10. Latvia, Dr. Baiba Tikuma

4. Breaking the ice – short talks and posters

17:25	17:40	11. Book presentation, Dr. Dorian Pitchard, UK, former SICAMM president
17:40	17:50	12. Visions for the dark honey bee and SICAMM, Jan Gutzeit
Posters, exhibition, drinks and snacks		13. Camilla Sundby, exhibition stand: Norwegian Beekeepers Association, NO
		14. Emma Buckley, Buckley´s Bees, UK
		15. Juha Pahtamaa, Dark bees in Lapland, FI
		16. Dr. Natuschka Lee, Amm photos from SICAMM members
		17-19. Dr. Natuschka Lee – Scanning electron microscopy of bees and other insects
		20. Overview map of brown bee apiaries in Norway, Norwegian Amm association


		21. Alba P Sieso and Dr. Natuschka Lee – Antimicrobial properties & AR in honey
By invitation from the SICAMM Main Board: Special event for member associations		
18:30	22:00	Assembly meeting & dinner
Friday 28th March 2025- registration opens at 8:30 am		
6. Biology and genetics of Amm		
09:00	09:50	22. Discrimination between native & non-native honeybees using wing measurements, Prof. Adam Tofilski, PL
09:50	10:10	23. A Europe-Wide Genetic Survey Uncovers Extensive C-Lineage Introgression in Amm Populations, Prof. Alice Pinto, PT
10:10	10:30	24. The unique Irish Amm, PhD student Alex Valentine, IE
10:30	11:00	Coffee, Tea and Snacks
11:00	11:50	25. Characterization of the Norwegian dark bee population, Linn F. Groeneveld, NO
11:50	12:10	26. Genetic monitoring of honeybees and its application to Amm samples across Europe, Dr. Vanessa Huml, CH
12:10	12:30	27. ??? Sustainable concepts for the conservation of Amm, Dr. Gabriele Soland, CH
12:30	13:30	Lunch
7. Conservation of endangered honey bee taxa		
13:30	14:20	28. QRGS for the conservation of Amm in Ireland, Colm O´Neill, IE
14:20	14:40	29. Activities of De Duurzame Bij i with regard to bee colonies on Texel, Henk Kok, NL
14:40	15:30	30. The Maltese Bee, Dylan Farrugia, Malta
15:30	16:00	Coffee, Tea and Snacks
8. Dark honey bee conservation work in Germany and France		
16:00	16:15	31. Germany: Bundesverband Dunkle Biene, Johannes Peter
16:15	16:30	32. Germany: Zuchtverband Dunkle Biene, Jörg Schock
16:30	16:45	33. Dunkle Biene Bayern, Jörg Schock and Armin Lochner
16:45	17:00	34. Austria: Austrian mellifera Züchter, Jörg Schock & Dietmar Eppenschwender
17:00	17:15	35. France, Klébert Sylvestre, FedCAN
17:15	17:30	36. France, Normandie, France, Dr. Lionel Garnery
Free time: Dinner options (on own costs): eat at the hotel or check: https://www.edgeofnorway.com/en/food-and-drink		
Saturday 29 March 2025 -registrations opens at 8:30 am		
9. Honey bee health and fitness		
09:00	09:50	37. Identifying and selecting for varroa resistant traits, Steve Riley, UK
09:50	10:10	38. Selection & the rate of living, Prof. Jaques van Alphen, NL
10:10	10:30	39. Nosemas & viruses in the M & C lineages of Amm, Dr. Laima B. Čereškienė, LT
10:30	11:00	Coffee, Tea and Snacks
11:00	11:20	40. Honey bee vitellogenin in an endangered honey bee taxa, Dr. Vilde Leipart, NO
10. Dark honeybee conservation work in Belgium, Holland, Poland and Switzerland		
11:20	11:35	41. The Netherlands, Peter Kassies, T´Landras
11:35	11:50	42. The Netherlands, Hans Peter & Piet Verkooijen

11:50	12:05	43. Belgium, ZwarteBij.org, Jürgen Boterberg
12:05	12:20	44. Belgium, Mellifica, Pauline Hubert
12:20	12:35	45. Poland, Dr. Łucja Skonieczna, Kampinoska
12:35	12:50	46. ??? Switzerland, Dr. Gabriele Soland, Mellifera
12:50	14:00	Lunch
11. Miscellaneous		
14:00	14:20	47. Honey – quality and requirements of quality, Oksana Bekkevold, NO
14:20	14:40	48. Apitherapy in Lithuania, Dr. Neringa Sutkevičienė, LT
12. Dark honeybee conservation work in UK and the Republic of Ireland		
14:40	14:55	49. England and Wales, Roger Pattersson, president of BIBBA
14:55	15:10	50. Ireland, Frankie de Dobbelaere, NIHBS
15:10	15:40	Coffee, Tea and Snacks
13. Conference finale		
15:40	17:00	SICAMM matters
Celebration 30 Year Anniversary		
		
18:30 → ∞		
Sunday 30 March 2025- Excursion		
		
Option 1. City Tour, from 9-12. Please book at email conference@sicamm.info		
Option 2. Apiary visit, from 9-12. Please book at email conference@sicamm.info		
Option 3. Fjord Cruise, from 11-14:30. Need to book your ticket in advance on https://rodne.no/en/fjord-experiences/stavanger/fjordcruise-lysefjord		

**Have a good journey home,
and you will be welcome back again
to our next SICAMM events!**



Thursday 27 March 2025
Session 2: Practical beekeeping with dark honey bees

1.	Bee Improvement from a mixed population Jo Widdicombe, UK	
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For most of us, our local populations of bees are a mix of several subspecies, due to high levels of imports over many years. Can we refine them to a near-native bee that breeds true, and which allows us to select and improve the qualities of our bees?

The selection and improvement of our local populations of bees is the way to a more sustainable system of beekeeping. It offers an alternative way forward to the conventional methods, and short-termism, of bringing in 'good stock' of other subspecies.

Jo will describe the simple methods he uses to refine and maintain a genetically diverse population with the qualities that he wants. The system is based on natural selection combined with the artificial selection by the beekeeper. It allows the bees to continually evolve to suit the conditions they face, and facilitates the development of such qualities as varroa tolerance.

Bio: I have been keeping bees in Cornwall, southwest England for more than 40 years. I worked as a Seasonal Bee Inspector for five years and currently run 60 colonies and 60 nucleus colonies. I have selected my bees from a mixed population to a near-native population. I have not treated my bees for varroa for 6 years.

I am a member of BIBBA (Bee Improvement & Bee Breeders Association) and have held various posts, including President for five years. I am also on the Main Board of SICAMM and have attended SICAMM conferences in Scotland, Wales, Moscow and Finland.


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Beekeeping organisation: British Isles Bee Breeders Association (BIBBA),
<https://bibba.com/>



SICAMM
mainboard member
& treasurer
Former president
of BIBBA

Thursday 27 March 2025
Session 2: Practical beekeeping with dark honey bees

2.	<p>SICAMM FROM THE START AND THE ROAD AHEAD</p> <p>Nils Drivdal, Norway</p>	
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This lecture will provide a summary of: i) the politics and events leading up to the conserving of the *Apis mellifera mellifera* in the municipalities of Flekkefjord, Lund, Sokndal and Sirdal, from 1956 to 1987, ii) projects from 1991 to the first international conference in 1995, iii) on creating SICAMM, 8 – 11. September 1995 i Flekkefjord till 27 -31. August 1997 in See, Tyrol. Election of the first president and executive committee. A short resume from discussions on strategies and methods, as well as issues relevant still today.



The first SICAMM delegates

1. Prof. Bożena Chuda Mickiewicz - Szczecin University of Agriculture, Poland
2. Prof. Dr. Jarostaw Prabucki - Szczecin University of Agriculture, Poland
3. Bjørn Toks - Hauge i Dalane, Norway
4. Anstein Thunheim - Gun, Norway
5. Prof. Dr. A. Wilhelm Steffan - Germany
6. Ing. Johann Trenkwalder - Austria
7. Dr. Cezary Fliszkiewicz , SGGW-AR Warszawa (today Warsaw University of Life Sciences), Poland
8. Probably J.Trenkwalder's daughter, Austria
9. Probably John Andrew Acheson - York - UK
10. Nils Drivdal, Flekkefjord , Norway
11. Probably Jane Acheson UK
12. Tom Robinson - York, UK
13. M.Sc. Joanna Ścięgosz - SGGW-AR, Warszaw, Poland
- 14 Unknown

Names identified by Maria Anna Budzynska Bu (NO), one of the co-organizers of the first SICAMM conference.

Bio: 1981: started beekeeping. 1982: secretary of committee for the Amm breeding area: 1991: project leader for the Amm breeding area; 1992: international networking; 1993: beekeeping oversees officer for beekeeping in Vest-Agder: 1995: Organisation of the first SICAMM conference, including follow-up conferences; since the early 1990s long collaboration with Josef Stark; 1997-2004 several positions of trust to various organisations (e.g. the Norwegian Farmer organisation (Norsk Bonde- og Småbrukarlag, Norwegian Gen-resource selection livestock (Norsk Genressursutvalg for Husdyr); today: retired and passionate beekeeper.

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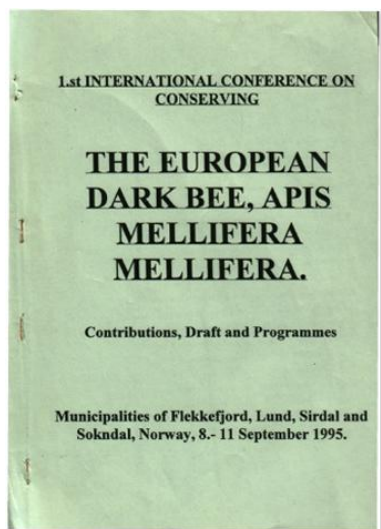
Beekeeping organisation: Norwegian dark bee association, NBBL, Norsk Brunbielag, <https://norskbrunbielag.no/>



SICAMM cofounder and SICAMM secretary from 1994 to 2009




From the contents of the very first SICAMM meeting in 1995, Norway:



Lectures:

Nils J. Drivdal:	Opening Declaration and welcoming addresses
Maria Anna Budzynska Bu	History and present situation of the dark bee in Europe.
Nils Jakob Drivdal:	History and present situation for the Dark Bee in Norway.
Johann Trenkwalder:	The situation for the dark bee in Austria.
Carsten Wolf Hansen:	The situation for the dark bee in Denmark.
Ingvar Arvidsson	The situation for the dark bee in Finland.
Maria Anna Budzynska Bu:	Situation for the dark bee in France.
Prof. Dr. Wilhelm Steffan:	Situation for the dark bee in Germany.
Ingvar Arvidsson:	The situation for the dark bee in Sweden.
Gabriel Kuhn:	The situation for the dark bee in Switzerland.
Tom Robinson:	The situation for the dark bee in United Kingdom.
Maria Anna Budzynska Bu:	Situation of the dark bee in Russia, Belorussia, Lithuania, Ukraine.
Maria Anna Budzynska Bu:	The situation of <i>Apis mellifera mellifera</i> in Poland
Trond Gjessing:	The Norwegian Breeding Programme on dark bees.
Dr. Joseph Stark:	The "Nordbi Project", evaluation report.
Dr. Kerstin Ebbersten:	Genetics for conservation.
Maria Anna Budzynska Bu:	Morphology of <i>Apis mellifera mellifera</i> .
Dr. Dorothy Kauhausen-Keller:	Morphometric methods for discrimination of A.m.m.
Prof. Dr. Jaroslav Prabucki, and Dr. Hab. B. Chuda-Mickiewicz:	Influence of Norwegian bee on improvement of Northern Poland local bees yield.

Thursday 27 March 2025
Session 3: Bee breeding of the dark honey bee

3.	How to manage the treasure of genetic variation in black bees? Emeritus Prof. Dr. Jacques van Alphen	
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Beekeepers have used the genetic variation present in honeybees to select for desired traits, such as high honey production, reduced defensive behaviour or reduced swarming. A rapid response to selection for such traits has led to the belief that the amount of genetic variation in honeybees does not limit selection. Beekeepers have been unaware of the potential trade-offs of selection for desired traits. Yet, some alarming evidence has been published, showing that selection results come at a significant cost. First, a large experiment on natural selection for Varroa resistance by Ingmar Fries and co-workers (2006) showed that alleles for Varroa-specific hygienic behaviour are absent or extremely rare in Swedish breed bees. Then, Themudo et al. (2020) showed that genetic variation in European honeybees has decreased during the 20th century I will explain how selection for desirable traits has reduced genetic variation and led to the loss of resistance alleles, I will then discuss the unique behavioural and genetic adaptations of honeybees that allow them to maintain high allelic diversity. I will show that rare alleles can only be conserved in large panmictic populations. The dark honeybee, *A. mellifera mellifera*, has not been subjected to selection to the same extent as the exotic *A. m. carnica*, *A. m. ligustica* or hybrid races such as Buckfast. They have therefore not been exposed to the genetic impoverishment suffered by such breed bees. Therefore, the remaining dark honeybee populations are a reservoir of allelic diversity that should be preserved. This can only be achieved in large free mating populations (with an effective population size of about 600 colonies).

Bio (text from BIBBA): Dr. Jacques van Alphen is emeritus professor of animal ecology. From 1975 to 2011, he worked at Leiden University as a researcher and lecturer. From 2007 to 2009, he held an EU Chair of Excellence, teaching behavioural ecology at the University of Rennes in France. He has published widely on the behavioural ecology of parasitoids, their application in biological pest control, and on speciation in tropical fish. Now he is affiliated with the Naturalis biodiversity Centre as correspondent. After retirement he published a review on the role of (natural) selection in honey bee resistance against Varroa mites. He also published a book (in Dutch) on the evolutionary ecology of honey bees.

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Affiliation: Naturalis Biodiversity Center, Leiden, The Netherlands

Google scholar: <https://scholar.google.com/citations?user=prsR23QAAAAJ>



**Universiteit
Leiden**
The Netherlands

Thursday 27 March 2025
Session 3: Bee breeding of the dark honey bee

4. Bees and queens: Easy ways of producing them

Roger Patterson



In the UK, many beekeepers, especially beginners, buy bees that are headed by imported queens and subsequently buy imported queens to replace them, rather than rear them from local stock. In this presentation, I will describe a method of producing colonies very rapidly that is a combination of several methods that I have used for well over 40 years.

In my area, I can usually produce at least 10 colonies during a summer that are strong enough to go into winter from one colony that came out of the previous winter. On many occasions, I have also produced brood combs, honey and mated queens from the original colony and increase.

Queen cells are produced regularly throughout the summer by using a little known method with a simple home-made board. If synchronised, these two work together well, but may have to be modified to suit different conditions and equipment. There is little specialist equipment needed. These methods, or parts of them can be used in isolation and are ideal for small/medium scale beekeepers and beekeeping associations to produce bees and queens for income, teaching or avoidance of importing.

Bio: Roger Patterson started beekeeping in 1963 on a farm in West Sussex. For about 15 years he kept about 130 colonies, but now keeps 35-40, in addition to managing 40-60 at his local beekeeping association, where he is the apiary manager. He has always kept locally adapted bees and has carefully selected from those with desirable characteristics. Much of the UK suffers from the effects of importation and Roger ruthlessly culls any undesirable queens. As a prolific speaker and demonstrator, he has travelled widely and with a combination of seeing other bees, beekeepers and conditions, together with removing several hundred free-living colonies, he has built up an understanding of the type of bee that survives well in his region.

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Beekeeping organisation: Bee Improvement & Bee Breeders Association

Weblink: <https://bibba.com/>



President of BIBBA

SICAMM delegate

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

5.	<p>Report from Norway</p> <p>Lars Kirkerud</p>	
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The long Scandinavian peninsula cross a range of latitudes and contains many different local environments for bee keeping. Coast and mountains add to this. The Golf Stream make temperatures along the Norwegian coast more even. But the length of honeybee seasons differ much from south to north. The last estimate of mellifera bees in Norway has been obtained by a detailed survey on the number of colonies in the different localities, requested by The Norwegian Genetic Resource Centre. The colony statistics revealed 7400 colonies, a marked increase compared to earlier estimates. Locally, our dark bee colonies have the highest concentration in the southern coastal areas. Reasons for the peculiar distribution of dark bees are presented. In some areas voluntary or legally reserved areas for *carnica* bees, constitute a barrier for further growth of the *mellifera* bee population.

Winter death of honeybee colonies has recently become a great problem in some areas. The Norwegian Beekeepers Association follow the situation. Parasites, illness and malnutrition are mentioned. The dark bee may have an advantage in nutrition during the autumn. Local reports from beekeepers will be referred to. Local breeding is done by most beekeepers, to select for good properties or prevent inbreeding. But there are few secure mating stations. Control is done by morphometry until last year. Central breeding effort by the Norwegian Beekeepers Association has increased during the past few years. The breeding population was supplied last summer with genetic material from the Flekkefjord Reservation Area, Telemark and Hedmark. About 430 queens were produced for testing and use in local breeding. Last summer DNA tests were carried out on the central breeding population and bees from local, and preferably virgin areas. The results of these DNA samples are presented by other speakers during the conference.

Bio: Educated marine biologist and worked as research scientist, gardener, different local jobs and beekeeping. In 2013 co-founder of Norsk Brunbielag and last year as chair. Special interests: Morphometry, natural selection.

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Beekeeping organisation: Norsk Brunbielag

Weblink: <https://norskbrunbielag.no/om-brune-bier/>



Head of
Norwegian
Amm
association

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

6.	Report from Sweden Ingvar Arvidsson	
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The Swedish dark bee project started with support from WWF in 1990 with Ingvar Arvidsson as project manager. The task of the project was to save the endangered Nordic bee *Apis mellifera mellifera*. A management group was organized for the implementation, which at the start consisted of: Ulf Gröhn, Josef Stark, Gunnar Johansson, Ingvar Pettersson, Karl Drakenberg and Per Ruth.

In 1997, the NordBi Association was formed. The association's task is, with the support of Sweden's beekeepers, to work together to ensure that Project NordBi can actively carry out the rescue work for our native bee. The annual general meeting is held every other year in connection with the Nordbi Conference. A first basic task in 1990 was to inventory the occurrence of Nordic bees in the country. A call was sent out to all beekeepers' associations and the responses contained information on approximately 150 people who had or were believed to have Nordic bees. Among the approximately 100 samples, which were sent to the project after the questionnaire, color assessment, measurements of hair length and cubital index were made. As a basis for further breeding, approximately 10 queens were selected, a number that then grew each year. The project is now working with approximately 30 breeding lines. From 1991 until 2003, we received financial support from WWF. This has included the opportunity for a quarter of an hour for the project manager and subsidies for test queens, insemination, trips to Läsö, other trips, the opportunity to publish NordBi-Aktuellt, DNA analyses, etc. The grant from WWF has been replaced from 2003 by funds from the National Honey Programme (NHP). The association has also applied for and received support from the Swedish Board of Agriculture via the Rural Programme (LBP). These funds are used for course activities, advice and for the publication of NordBi-Aktuellt as well as costs for gene pools. Membership fees and private donations are also important financial contributions.

Bio: Ingvar Arvidsson, passionate beekeeper since 1979. Manager of mating station and queen. Since Has contributed significantly, in collaboration with others, to expanding the dark brown abundance in Sweden. Cofounder of the Swedish Association of the Amm association. Other activities: former pilot and school teacher, environmental activities, from polluted lakes to other endangered species in Sweden, such as birds.

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Beekeeping organisation: Föreningen Nordbi, Sweden

Weblink: <https://www.nordbi.se/>




Cofounder and former chair of Swedish Amm association

Former project leader for Swedish Amm project (Projekt Nordbi)

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

7.	Report from Denmark <u>Troels Demant, Ole Hertz, Torben Nielsen</u>	
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BBD is a small association with only about 30 members. The foundation of the Danish population of dark bees is the offspring of 123 original bee colonies that were found on the island of Læsø in 2008. At that time, a few beekeepers on Læsø had started to introduce yellow Iberian bees that crossed into the original dark bee population. The natural population was threatened. An attempt was made, with reference to the Rio Convention, to introduce a conservation area that only allowed brown bees on Læsø, but the attempt failed. Therefore, dark bees can only be pure bred in a reserved area in the eastern part of the island, to the great inconvenience of conservation breeding work.

- BBD is working to secure Læsø's status as a pure breeding area for dark bees so that free mating will once again be possible.
- BBD is working on allowing dark bees in the Danish nature national parks that are being established around Denmark in recent years.
- BBD expects that genetic testing can be used in the future to investigate the bees' kinship and thereby contribute to making breeding work more targeted.

The island of Anholt has been designated as a pure breeding area for dark bees in 2025. Attempts are being made again to build up a population of varroa-free bees. In 2018, all bee colonies on the island that were sick with varroa were exterminated and they started from scratch with a small number of colonies from Læsø, which have been intensively treated to remove all varroa mites. Then they are multiplied to a larger number and new varroa-free queens will be added.

In connection with Apimondia 2025 in Copenhagen, it will be possible to arrange a one-day excursion by plane to Anholt/Læsø for a group of around eight people for an amount of around 6 -700 € per person. person if there is a suitable atmosphere at the meeting in Stavanger.

Bio: Troels Demant is a forest and landscape engineer and vice-chairman of the *Association for Brown Bees in Denmark (BBD)* and head of the pure breeding station for brown bees on the island of Endelave.

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Beekeeping organisation: Danish Amm association, Brune Bier Danmark

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**BRUNE BIER
DANMARK**
www.brunebier.dk



SICAMM delegate
Board member of
Danish Amm
association

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

8.	Report from Finland <u>Markku Pöyhönen and Lassi Kauko</u>	
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Aimo Nurminen was the key person in the Finnish work with dark bees. He started his work when the number of Finnish dark bee colonies was very low. Over the years, he was able to expand the population and was eventually producing 150-200 queens a year. The queens were mated on the island that many of participants of the 2018 SICAMM Conference visited. His success in getting desired matings was better than almost all breeders of any breed of bee present in Finland. Practically every beekeeper with dark bees has queens produced by Aimo. There was even demand for those queens abroad, for example in Germany. Aimo was planning to concentrate on producing queens only for breeders and for export in the future. Selection of dark bees was planned to be a big part of his future work. In addition to breeding and evaluation of the bee stock, he had other activities related to dark bees: his bees were located in many places such as the summer residence of the President of Finland. Other locations were in the city of Turku and shopping centres. He was displaying dark bees in observation hives during annual fairs. Connections to the ice hockey team TPS and the group protecting the Baltic sea were part of his PR activity. Besides bees, Aimo was interested in honey. Together with his wife Raija, he developed a brand of Dark Bee Honey with black labels. They were also developing other products such as honey with lemon or sea buckthorn. The honey for the above-mentioned ice hockey team had its own label too. Aimo's important role extended well beyond breeding and conserving dark. Owing to his manifold activities, he was respected in the whole beekeeping community in Finland. After the sad, sudden death of Aimo Nurminen in 2018, the leadership of the Finnish Darkbee Association was taken over by Markku Pöyhönen, who quit his regular work as a zoo keeper to be able to work fulltime with bee and focus on the conservation work of the dark honeybee in Finland. We have initiated several public events to raise local people's awareness of the dark bee, e.g. bee show in demonstration beehive and bee photo exhibition in various zoos zoos, with more than 35.000 visitors. Six years ago, we also initiated a blackqueen rearing in Helsinki area (Bodö). We are also trying to engage very much in international collaborations, visiting regularly various bee conferences and trying to collaborate with other dark bee keepers such as in Sweden and Ireland

Bio: Forty years experience as beekeeper in Southern Finland in different environments, including 29 years citybeekeeping experience in Helsinki area. Worked with different bee subspecies (Buckfast, Ligustica,...). Participated in founding the Helsinki City Beekeepers and the Finnish Blackbeekeepers Association. Since 2023, president of the Finnish Blackbeekeepers Association. Participated in SICAMM meetings 2018 and 2023. Member of Swedish, British and Irish blackbee Associations. Other profession: zookeeper in different countries such as in England, Germany, Sweden and Australia, focusing on protection of rare species.

Email: pj.markku@tummamehilainen.fi, moyhonen@kolumbus.fi

Beekeeping organisation: The Finnish Blackbeekeepers Association, Suomen Tumman Mehiläisen Hoitajat

Weblink: <https://tummamehilainen.fi/en/>




Applied for SICAMM membership

President of Finnish Blackbeekeepers association
Candidate delegate to the SICAMM Mainboard

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

9.	Report from Lithuania Dr. Laima Blažytė-Čereškienė ^{1,2} , Eduardas Budrys ^{1,2} , Svetlana Orlovskytė ¹ , Arūnas Adžgauskas ²	
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In 2019, after three years of research, we announced the discovery of surviving *Apis mellifera mellifera* colonies in Lithuania. We found a relatively high genetic diversity of maternal lineages (over 20 mitotypes). Morphometric analyses revealed that some colonies had characteristics very similar to those of the native bees that lived in Lithuania before 1970. Most of these colonies were found in forested areas, particularly in the eastern and southern regions of the country. Beekeepers began efforts to restore the native Lithuanian dark bee population. In 2020, a queen mating station was established in Dzūkija National Park, located at the edge of a reserve. There are no beekeepers within a radius of 6 km, only bees living in hollow trees. The area has been cleaned of introduced subspecies. Swarms from the area are annually captured and evaluated. Queens from the selected colonies have mated in this location for four seasons. In 2021, the Lithuanian Dark Bee Association was founded, now with 30 members. In spring 2023, the association's efforts led to the inclusion of our native bees in the "Conservation of Endangered Old Lithuanian Breeds of Livestock and Poultry" program. In autumn 2024, the first 17 beekeepers with 350 colonies had received support for keeping dark bee colonies and participating in the breeding program. In 2024, by joint efforts of the National Park, scientists and the association, the free-living population of European dark honeybee (*A. m. mellifera*), which lives in tree hollows was included in the list of protected species of Lithuania. Further work is needed to develop conservation and action plans for the Red Listed wild population of dark bee, which is closely related to the hive-keeping population.

Bio: Laima Blažytė-Čereškienė is a senior researcher and the current head of the Laboratory of Chemical and Behavioural Ecology at the Nature Research Centre, Lithuania. She holds a Ph.D. in Biology with a focus on honey bee learning from Institute of Ecology of Vilnius University and Vilnius Pedagogical University. With a strong background in chemical ecology and insect behaviour, her research interests span across honeybees, wild bees, coleopterans, and lepidopterans, focusing on topics like attractants, repellents, pollinator-plant interactions, and pest-host relationships. Now she is particularly dedicated to studying honey bee diseases, and the conservation of the Lithuanian native honeybee (*Apis mellifera mellifera*). Since 2021, she has also served as the chair of the Main Board of the Lithuanian Dark Bee Association.

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**LIETUVOS
TAMSIOJI BITĖ**

Chair of the Mainboard
Lithuanian Dark Bee
Association



Candidate to the
SICAMM
Mainboard

Thursday 27 March 2025

Session 3: Amm conservation work in Fennoscandia and the Baltic States

10.	Poster presentation - Conservation work of the Latvian local honeybee Baiba Tikuma and Dace Siliņa	 
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The Latvian local honeybee is a population of the *Apis mellifera mellifera* subspecies. The Latvian local honeybees population has adapted to the climatic conditions of Latvia through evolution. The purity of the genetic information of the Latvian honeybee population was contaminated with other introduced bee subspecies as a result of hybridization in the 1930s. The evaluation of the economic characteristics and morphological measurements of the Latvian local honeybee began in the 1970s, when the morphological measurement characteristics of the local honeybee population were defined in the laboratory of the Ogre Beekeeping Experimental Station: (1) snout length, 6–6.2 mm (the shortest among the subspecies found in Latvia); (2) cubital index, maximum value for worker bees 1.7 (the lowest index among the subspecies found in Latvia); (3) discoidal deviation, always negative; (4) body colouration black without yellow stripes.

In later years, the Latvian honeybee population were studied and conserved at the Faculty of Agriculture of the Latvian University of Agriculture (now the Latvian University of Life Sciences and Technology, Faculty of Agriculture and Food Technology), where the main task was to purify the remaining *Apis mellifera mellifera* material and ensure its conservation. In the faculty's bee apiary, morphological measurements of the wings are used to determine the purity of the material: the cubital index (Ci), which is <1.8 for worker bees and queens, and the discoidal deviation (DsA), which is negative. The conservation work includes 60 bee colonies which is a small number and does not ensure sustainable avoidance of inbreeding. Both natural mating and instrumental insemination are used to conserve the native honeybee. In 2009, for the first time, instrumental insemination of queen with homogenized dron sperm was performed at the Latvian local honey bee conservation apiary of LBTU. The first results were positive. In the following years, both natural mating and instrumental insemination of queen bees were used. In 2024, bee samples were collected to assess whether a local honey bee population is found in the territory of Latvia. 57 bee samples were collected in apiaries of a small territory of Latvia and morphometric and DNA analyses were performed on them. According to the first results obtained, it was concluded that a Latvian local honeybee population is still found in apiaries. We will continue the research work.

Bio: Long experience as beekeeper, since 2020 manager of the university bee apiary. Consultant at Latvian Beekeeping Association. Performed research on pollinators of cranberries. Other professions: Agronomist, lecturer and research assistant. Co-author of the Latvian handbook “Bee-Honey-People”, 2020. Academia: <https://independent.academia.edu/Tikuma>

Email: baiba.tikuma@lbtu.lv

Address: Latvia University of Life Sciences and Technologies, Latvia

Beekeeping organisation: Latvian Beekeeping Association, LBB (for the moment, there is no organisation for beekeepers with dark bees)

Weblink: <https://www.strops.lv/par-mums>



Agronomist, beekeeper and manager of the university bee apiary

Consultant at Latvian Beekeeping Association

Thursday 27 March 2025
Session 4: Breaking the ice

11.

Poster: Escaping the extinction vortex
Dr. Dorian Pritchard



When a species goes extinct, it typically first goes through a repeated standard sequence of events, termed the EXTINCTION VORTEX. These are: shrinking of population size, failure to find unrelated mates and inbreeding. Inbreeding promotes genetic homozygosity including that of the complementary sex determiner gene, *csd*, producing diploid drones, causing major reduction in brood nest size. The same thing occurs with low *csd* polymorphism (i.e. little variation in alleles) in the population, ultimately with population extinction. The lower the polymorphism of *csd*, the lower the brood viability. Among non-medicated European colonies, almost none live for even 3 years, while the US overwinter survival rate is a shocking 3%! *Apis mellifera* therefore appears to be well within its extinction vortex. Population decline begins with reduction in brood viability of individual nests, followed by others until whole communities of bees are lost.

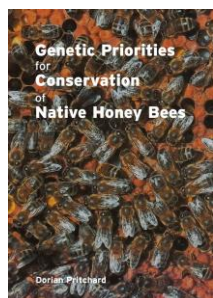
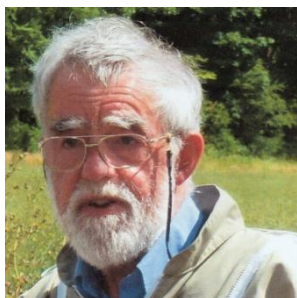
The poster will illustrate how to estimate the % viability of worker brood, the level of *csd* polymorphism in the population and the probability of colony over-winter survival. A survival score can also be calculated as the product of brood viability and the number of frames in a brood nest, a score in excess of 5.0 is a strong predictor of successful over-winter survival. There is advice on how to save and reverse apparently hopeless situations. These techniques are detailed in my new book, on sale at the conference. Conference Price: £24 (350 Nkr) - Cash only, please.

Bio: Dorian Pritchard is a retired university lecturer in medical genetics. He has a PhD in genetics, is author of “*Foundations of Developmental Genetics*” and first author of three editions of “*Medical Genetics At A Glance*”. He has run 4 – 20 national hives in Northumberland since 1979 and was inspired to concentrate on the native Dark Bee, *A. m. mellifera*, after comparing the performance and honey quality of local and foreign bees side by side in a rape field. He has been prominent for many years at local, national and international levels of beekeeping, serving as Conservation Officer of BIBBA and for 10 years as President of SICAMM (2004-2014), the international association for conservation of the Dark Bee. His publications in the beekeeping press reflect his deep concerns for native honey bee conservation and his success in selecting Varroa resistant, near-native bees.

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Beekeeping organisation: Hexham Beekeepers’ Association, Northumberland

Weblink: <https://hexhambeekeepers.co.uk/>



HBKA

Hexham
beekeepers



Former
SICAMM
president
and
conservation
officer of
BIBBA

Thursday 27 March 2025
Session 4: Breaking the ice

12.

Poster: SICAMM - quo vadis?

Jan Gutzeit and Johannes Peter



What possibilities have SICAMM to evolve from a network of enthusiasts into a coordinated umbrella organization for *Apis mellifera mellifera* conservation?

Key topics include:

- a standardized purity test,
- prioritizing conservation breeding,
- establishing a breeding registry,
- protected areas,
- political advocacy.

Can SICAMM explore additional collaboration options with e.g. EAZA (<https://www.eaza.net/campaigns/>) to ensure sustainable genetic diversity.?



Jan Gutzeit and Ingvar Arvidsson – trying to reestablish the dark honey bee in Germany with Swedish Amm bee queens.

Bio: Beekeeper since 2011, started with dark bees in 2012. Starting as a “one-man beekeeping show”, Jan successively founded various dark bee organisations to promote the dark bees in Germany, first locally like in Saxony (2014), after this, together with Johannes Peter, in 2017, he expanded this further to the German Dark Bee Association, Bundesverband Dunkle Biene Deutschland e.V. Today, this is the largest dark bee organisation in Germany, containing a broad spectrum of members, which includes not only experienced breeders and keepers of the dark bee, but also primarily conservationists, entomologists, and representatives of the beekeeping guild. The association's stated goals are correspondingly diverse, including conservation breeding, support for reintroduction programs, imparting knowledge about this honey bee subspecies native to Germany, and, of course, the exchange of experiences. To offer each member the right field of activity, we have created various working groups. In addition to the beekeeping group, there is also one for natural beekeeping and breeding. Other profession: Photographer.

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Beekeeping organisation: Bundesverband Dunkle Biene Deutschland e.V.

Weblink: <https://www.bv-dunkle-biene.de/>



Applied for SICAMM membership

Chair (together with Johannes Peter) of Bundesverband Dunkle Biene Deutschland e.V.

Thursday 27 March 2025
Session 4: Breaking the ice

13.

Exhibition stand: Norwegian Beekeepers Association

Camilla Sundby



Welcome to our stand to learn about the Norwegian Beekeepers Association, our projects, our breeding program, mating stations, and collaboration with the Norwegian dark bee association.

MEMLEMSFORDELER I NORGES BIRØKTERLAG

Gjennom medlemskap i et av våre lokallag får du:

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- Politisk påvirkning
- Et inkluderende fagmiljø
- Avlsarbeide
- Nyhetsbrev med fagstoff og siste nytt
- Fagbladet Birøkteren

Les mer om fordelene og bli medlem

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Beekeeping organisation: Norwegian beekeeping association, Norges Birøkterlag

Weblink: <https://norbi.no/birokt>



**NORGES
BIRØKTERLAG**

– siden 1884

Responsible
for bee
breeding
issues in
Norway

Thursday 27 March 2025

Session 4: Breaking the ice

14.

Poster presentation: Buckley's Bees

Emma Buckley



Buckley's Bees is a beekeeping business dedicated to the preservation and promotion of healthy bee populations, paying particular attention to breeding native / near native / locally adapted bees. Buckley's Bees operates with a strong emphasis on ecological balance, pollination, and community education. The company works with corporate partners, farmers and anyone keen to get involved! We create beekeeping **jobs** for beekeepers local to our corporate partners worldwide! If you're interested in joining our team, get in touch to find out more – hello@buckleysbees.com

Buckley's Bees is committed to bee conservation efforts. The business actively educates the public about the importance of bees in sustaining ecosystems and agriculture. Through workshops, apiary tours, and outreach programs, they provide hands-on experiences and knowledge about the vital role of bees in the environment. At the heart of Buckley's Bees is a commitment to sustainability, environmental stewardship, and community engagement. The company's mission is to contribute positively to the health of the environment while offering premium, eco-friendly products to consumers who are conscious of the ecological impact of their purchases. By balancing environmental responsibility, with education and bee breeding, Buckley's Bees stands as a model for responsible, modern beekeeping.

Bio: Emma Buckley, the founder of Buckley's Bees and BIBBA Trustee - I grew up on a smallholding in rural Cheshire, England rearing pedigree cattle, rare breed pigs and chickens. My father, David Buckley, has been a beekeeper for nearly 60 years and is the longest living member of BIBBA. So, beekeeping has been a part of my life since birth. This probably determined my path in life more than I realised at the time! I attended Harper Adams University, studying for a degree in Agri-Business before developing Buckley's Bees a short time later. Today, I lead the brilliant Buckley's Bees team (including my Dad!) where our work focuses on:

- Making a positive difference to the native bee population;
- Promoting the sustainable growth of pollinator habitats and the positive impact on the wider environment;
- Creating new employment opportunities for beekeepers;
- Educating and engaging with the public, schools and businesses, and;
- Ultimately, bringing beekeeping to new places and to younger generations.



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Beekeeping organisation
BIBBA

Founder and CEO of
Buckley's Bees,

<https://www.buckleysbees.com/>



Buckley's Bees

EST. 1966

Thursday 27th March 2025

Session 4: Breaking the ice

15.

Poster presentation: Dark bees in Lapland

Juha Pahtamaa



We are new Dark Bee (*Apis mellifera mellifera*) beekeepers from Lapland Finland.

Our passion and mission is to save the Finnish dark bee population and we continue valuable work from previous beekeepers and originally Väinö Mäki generation.

Our dark bees lives in Lapland Finland in pure arctic nature and we have chance to get to know more about the species behavior in arctic nature through the nightless night in short summer period and harsh winter.

Bio: We are new beekeepers and entrepreneurs from Northern part of Finland and started beekeeping last year 2024 directly with the dark bees. We started raising new queen dark bees in Lapland forest at the first year. We are willing to network with all other dark bee beekeepers at the conference. Please come to talk with Juha Pahtamaa 😊

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Weblink: www.ketomo.fi



Image source: https://laplandwelcome.fi/es/como-llegar-laponia/map_of_lapland_it_cropped-2/



Variety of honey based food products, such as ice cream






Beekeeper

Founder and CEO

Thursday 27th March 2025
Session 4: Breaking the ice

Different types of image based posters:

16.	<p>Poster presentation: Dark honey bee photos</p> <p>From all contributors to the photos, compiled by Natuschka Lee conference@sicamm.info</p>	
17-19.	<p>Poster presentation: SEM images of Amm</p> <p>Dr. Natuschka Lee Umeå University and Swedish University of Agricultural Sciences, natuschka.lee@slu.se</p>	
20.	<p>Poster presentation:</p> <p>Overview map of brown bee apiaries in Norway, Norwegian Amm association</p>	



Thursday 27th March 2025
Session 4: Breaking the ice

21.

**Poster presentation: Antimicrobial properties
and antibiotic resistance in honey**

Alba Puigefabregas Sieso^{1,2} and Natuschka Lee^{1,2}



Honey is produced by honeybees and is a complex mixture of different types of sugar, acids, minerals, vitamins, amino acids, pollen, microbes, and, depending on the environmental field, environmental hazards, such as pesticides. Honey has been regarded as a health promoter for thousands of years in different human cultures all around the world. However, it is only during the last decades that science has started to explore some of the parameters in honey that may promote health (for humans as well as for bees). In this study, we explored the microbiological activities in honey from different parts of Sweden and a selection of other countries.

Two different strategies were used: i) explore the microbiological composition in honey and its antimicrobial properties; ii) explore the antibiotic resistance (AR) properties of honey and microbes isolated from honey. These two strategies were analysed via microbiological, chemical and molecular biological methods.

A large part of the tested honey samples and microbial isolates from these showed both antimicrobial as well as AR properties against different model species and complex samples such as activated sludge from the municipal wastewater treatment. Further studies are needed to explore the mechanism and role of these properties – and what kind of implications this will have for human consumption and usage of honey and for bee keeping management.

Bio: Biologist, researcher in microbial ecology, pollination ecology, geo- and astrobiology, biotechnology, and clinical microbiology. PhD from Lund University. Guest researcher in Denmark and in Germany. Beekeeper and manager of the campus apiary at Umeå university. Chair of Northern Swedish Entomology Society, board member of Swedish Amm association and SICAMM. Engaged in interdisciplinary science – natural sciences versus humanistic sciences with regard to human future on Earth and in Space.

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Beekeeping organisation: Föreningen Nordbi, Sweden

Affiliations: ¹Umeå University, ²Swedish University of Agricultural Sciences, Uppsala



Researcher
(microbial ecology,
pollination ecology)
Member of SICAMM Main Board
and
Swedish Amm association

Friday 28 March 2025, Session 6

Biology and genetics of Amm

22.	Identification of dark honey bees using wing measurements <u>Prof. Dr. Adam Tofilski</u> ¹ , Lars Kirkerud ² , Per Kryger ² , Andrzej Oleksa ¹ ¹ Dpt. Zoology and Animal welfare, University of Agriculture in Krakow, Poland ² Norske Brunbielag, Norway	
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Dark honey bees (*Apis mellifera mellifera*) occur naturally in North and Western Europe. They are threatened by the mass importation of non-native queens by beekeepers. In order to protect the native bees, they must be reliably identified. Different methods for subspecies identification are based on both molecular and morphological markers. Morphometric identification of honey bee subspecies can be based on 19 landmarks marked on fore wing images of workers. The coordinates of the landmarks are analyzed using the methodology of geometric morphometrics. Identification of individual bees is imprecise; therefore, a colony is usually identified using more than ten wings. Prior to the measurements, wing images must be obtained. Next, Identifly software can be used to place landmarks on all wing images. The same software can be used to classify the sample as one of the subspecies. The main limitation of morphometric identification of honey bees is the lack of reference samples that can be used for comparisons between lineages, subspecies or ecotypes. In order to solve this problem there were collected and re-analyzed large data sets from Europe and southwestern Asia. Results of the analysis indicate that despite the mass introduction of non-native bees by beekeepers, there is still present geographical variation of honey bees. At the same time, there are signs of introgression or extinction of native honey bee subspecies in some regions. Reference data and software for the morphometric identification of honey bees is freely available. In comparison to molecular methods, morphometric identification of honey bees is faster, cheaper and does not require sophisticated equipment. The only equipment needed for wing imaging is a scanner or microscope equipped with a digital camera. Such equipment is now available to most beekeepers in Europe. We hope that wing morphometry will help to identify native honey bees and protect them.

Bio of main presenter:

- Professor of Agricultural Sciences, University of Agriculture in Krakow,
- ScD in biology, Jagiellonian University, Krakow, 2010, “Mechanisms of cooperation and conflict resolution in social insects”
- PhD in biology, Jagiellonian University, Krakow, 2001, “Life strategies of honeybee workers”.
- MSc in biology, Jagiellonian University, Krakow, 1994, “Does honeybee swarming behaviour protects colony against social parasites?”

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Google scholar: <https://scholar.google.com/citations?user=GWfwsbAAAAAJ&hl=id>



Experienced
honey bee
researcher

Friday 28 March 2025, Session 6

Biology and genetics of Amm

23.

**An Unprecedented Europe-Wide Genetic Survey
Uncovers Extensive C-Lineage Introgression in
A.m. mellifera Populations**



Professor Dr. M. Alice Pinto

Europe is home to 10 subspecies of *Apis mellifera*, classified into four main lineages sensu Ruttner: M (western and northern European), C (southeastern European), A (African), and O (Middle Eastern). However, long-standing human-mediated movement of queens, primarily of C-lineage ancestry, has threatened the genetic integrity of many of these native subspecies, particularly *Apis mellifera mellifera*, through introgression and replacement. In this talk, I will present the results of a comprehensive survey recently conducted across Europe using wing shape analysis (DeepWings), mitochondrial DNA, and nuclear DNA markers. The findings reveal that, apart from a few countries and isolated protected populations, the European honey bee gene pool is predominantly composed of C-lineage ancestry. While several subspecies exhibit varying levels of C-lineage introgression, in many regions within the native distribution of *A. m. mellifera*, the M-lineage-derived component was low or virtually absent. This unprecedented survey highlights the urgent need for strategic conservation efforts to preserve what remains of *A. m. mellifera* diversity.

Bio: M. Alice Pinto is a Professor at the Polytechnic Institute of Bragança (IPB) and a Researcher at the Mountain Research Centre (CIMO), Portugal. She earned a doctoral degree in Entomology from Texas A&M University, US. Pinto developed a keen interest in honey bee genetics during her PhD research while studying a feral population living in oak tree cavities. For her PhD dissertation, she examined the genetic changes in this population undergoing Africanization. Currently, her main research interests involve uncovering the processes that shape extant genetic diversity patterns in honey bee populations, with a particular focus on uncovering the molecular basis of local adaptation and the conservation status of different subspecies. She has coordinated and collaborated in >15 national and international research projects, which have dealt with a wide array of subjects: (i) from the genomics of *Apis mellifera* to the genetics of its predators (*Vespa velutina*) and diseases (viruses and nosemosis), and (ii) from the development of SNP-based assays and Deep Learning-based software for honey bee identification (DeepWings) to the botanical identification of bee-collected pollen via ITS2-metabarcoding. She has published >75 peer-reviewed scientific articles and >40 popular articles, and presented >250 conference papers. She has supervised many BSc, MSc, PhD students and Post-Docs. She is a member of the editorial board of *Scientific Reports*, *Insects*, and *Frontiers in Bee Science* and of the Scientific Board of SICAMM. Author IDs: SCOPUS ID: 8085507800; WoS Researcher ID: AAF-4226-2020.

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Web links: <https://cimo.ipb.pt/index.php?r=researcher/view&id=46>; <http://esa.ipb.pt/~apinto/index.htm>; <https://scholar.google.com/citations?user=EutUgVQAAAAJ>



Expertise:
Honey bee genetics

24.

**Characterisation of the honeybee in Ireland:
Apis mellifera mellifera is under threat from
introgressive hybridisation**



Alexandra Valentine, Arrigo Moro, Ethan Briggs, Brandon Collier,
Kenneth Sandoval, Chiara Binetti, Matthew Richardson, David Wragg, Keith A.
Browne, Mark Barnett, NIHBS & Grace P. McCormack

Apis mellifera mellifera (Amm) has a native range spanning across most of Northern & Western Europe, and much of the early honeybee systematics was conducted on this subspecies. Ireland boasts one of the largest remaining populations of Amm in Europe but this subspecies is now also under significant threat of introgression with non-native subspecies. The extensive native range of Amm encompasses a variety of habitats and climatic conditions, driving phenotypic adaptation and the effects of the relatively unique mild damp temperate oceanic conditions of Ireland is thought to have resulted in distinctiveness of the Irish Amm population.

However little systematic work has been carried out on the Irish population. Using multiple morphological and molecular approaches we determined the current hybrid status of the managed population whilst assessing the morphological divergence in Ireland. This study revealed that only 69% of the 466 colonies assessed were now classified as Amm via a SNP assay at an 95% M-lineage proportion threshold indicating a rapid increase in levels of introgression. Several unique mitochondrial haplotypes were identified.

A suite of 12 morphological traits suggest evidence for distinctiveness of Irish Amm in total leg length, proboscis length and cubital index from European populations of honey bees. This research points to a honey bee population that is uniquely adapted to life in Ireland but under threat given a fourfold increase in introgression rates in recent years.

Bio: PhD student at the University of Galway working with Prof. Grace McCormack to investigate the diversity and adaptation of the Irish honeybee (*Apis mellifera mellifera*). Science Foundation Ireland Postgraduate Scholar. ResearchGate: <https://www.researchgate.net/profile/Alexandra-Valentine-3>

Email: a.valentine2@universityofgalway.ie

Affiliation: Molecular Evolution and Systematics Laboratory, University of Galway, Ireland

Galway Honeybee Research Centre member: www.galwayhbrc.com

Twitter: @_AlexValentine1

Weblink to research team: <https://www.universityofgalway.ie/our-research/people/natural-sciences/gracemccormack/>



Taighde Éireann
Research Ireland



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY

PhD student in diversity and
adaptation of the Irish honeybee (*Apis
m. mellifera*)

Friday 28 March 2025, Session 6

Biology and genetics of Amm

25.	<p style="text-align: center;">Characterization of the Norwegian dark bee population</p> <p style="text-align: center;">Dr. Linn Fenna Groeneveld¹, Vanessa Huml^{2,3}, Gabriele Soland², Richard Bernstein⁴, Andreas Hoppe⁴, Camilla Sundby¹</p> <p style="text-align: center;">¹Norwegian Beekeepers Association, ²Apigenix, Switzerland, ³University of Plymouth, UK, ⁴Institute for Bee Research Hohen Neuendorf, Germany</p>	
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The distribution of *Apis mellifera mellifera* is historically thought to have coincided with deciduous forests in Europe, which stretched into Southern Norway. Today, *A. m. mellifera* is outnumbered by *A. m. carnica* in Norway, which is the favored subspecies of the roughly 4500 active Norwegian beekeepers. There are legally protected conservation areas for *A. m. mellifera* in Norway and the dark bee association, Brunbilaget, is dedicated to the conservation of the subspecies. Furthermore, the national beekeeping organization has a breeding program for this subspecies that is run in close cooperation with the dark bee association. Because of the ample opportunity for unintended admixture with *A. m. carnica*, and Buckfast, we decided to screen samples from the conservation area, the breeding program and selected *A. m. mellifera* beekeepers in Norway using a 70 000 SNP chip. A total of 89 samples were collected and genotyped. None of the samples from the conservation area (n=22), showed any signs of admixture. When using Swiss thresholds for accepted levels of admixture in breeding, one of the samples from the breeding population (n =22) and 7 samples from beekeepers outside of the conservation zone (n=45) should not be used in breeding. Whilst hybridization influences were predominantly of C-Lineage origin (*A. m. carnica* and *A. m. ligustica*) some A- and O-lineage influences were also present, likely originating from hybridization with Buckfast bees. The insights gained will inform future breeding and conservation decisions.

Bio of main presenter: Linn Fenna Groeneveld is a scientist and project leader at the Norwegian Beekeepers Association, based in Kløfta, Norway. She holds a PhD from the University of Göttingen. Her research career spans multiple prestigious institutions, including the German Primate Center and the Max Planck Institute for Evolutionary Anthropology. Linn has a strong background in project management, research leadership, and international collaboration. She has also worked extensively on the genetic diversity and conservation of farm animals. **Google scholar:** <https://scholar.google.com/citations?user=oJHECvsAAAAJ&hl=en>


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Beekeeping organisation: Norwegian beekeepers association, Norges Birøkterlag

Weblink: <https://norbi.no/birokt>



Researcher and project leader at Norwegian beekeepers association

26.	<p>Implementation of an extended SNP Panel for the genetic monitoring of honeybees and its application to Amm samples across Europe</p> <p>Dr. J. Vanessa Huml^{1,2,3}, Richard Bernstein⁴, Andreas Hoppe⁴, Mairi. E. Knight³, Jonathan S. Ellis³, Victoria G. Buswell⁶, Dora Henriques⁵, M. Alice Pinto⁵, Grace McCormack⁷, Aglagane Abdessamad⁸, Asmaa Anwar¹³, Alireza Arab⁹, Dilek Muz¹⁰, Mustafa Necati Muz¹⁰, Marion Zammit-Mangion¹¹, James Arruda Salome¹², Gabriele Soland-Reckeweg²</p>	
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A number of methods have been established for the routine genetic monitoring of honeybees. These mainly focus on the estimation of hybridization between subspecies, as introgression is a major threat to the genetic integrity of native subspecies, leading to the replacement of locally adapted forms and the loss of species' genetic diversity through homogenization. Given this focus, intra-subspecies diversity of markers is limited, making them less suitable for the estimation of other measures relevant in a conservation monitoring scheme, such as genetic diversity, inbreeding and effective population size. In this project, we evaluate a new tool for the genetic monitoring of honeybees, a 70K SNP-chip based on Jones et al. (2021). This has the advantage of including markers identified in previous studies that reflect phenotypic differences, such as variation in immune response or associations with traits such as hygienic behaviour, honey production and varroa tolerance. It also includes previously published marker sets for the estimation of introgression. The inclusion of markers that show intra-subspecies variation of functional relevance, as well as the higher marker density compared to previous honeybee SNP-chips, makes this a promising tool including a wide range of applications. These are the estimation of genetic diversity, inbreeding and effective population size, parentage analysis and possible genomic selection in breeding programs. Further, the analysis of introgression was optimized to distinguish between six clusters comprising of the A-, O- and Y-Lineages, *A. mellifera mellifera*, *A. mellifera carnica* and *A. mellifera ligustica*, using a comprehensive database of 1276 reference samples, built considering a total of 20 subspecies and ~4600 samples across Europe, the Middle East and Africa. Here, we report on the optimization and validation of these applications and present results for ~1500 samples of *A. m. mellifera* from 14 European countries.

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⁸University Ibn Zohr, BP 32/S Agadir, Morocco⁹University of Tehran, Department of Animal Science, Karaj, Iran

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¹⁰University of Malta, Msida MSD 2080, Malta

¹¹Federal University of Santa Catarina, Santa Catarina 88034-700, Brazil

¹²Plant Protection Research Institute, Agricultural Research Center, Dokki, Giza, Egypt

Bio of main presenter: J. Vanessa Huml is a freelance scientist with expertise in population and conservation genomics. She acquired her diploma degree in biological sciences at the LMU in Munich, Germany and continued to do her PhD with Dr. Jon Ellis at the University of Plymouth /Manchester Metropolitan University in the UK on conservation genomics of European grayling, a salmonid freshwater species. She stayed for several years as a PostDoc at the University of Plymouth working on conservation genomics of bumblebees and honeybees in the group of Prof. Dr. Mairi Knight.

In the last two years she has been working for the Swiss association for the conservation and breeding of dark honeybees mellifera.ch developing new tools for routine genetic monitoring. In 2023 she has been a founding member of Apigenix reformed as an association where she acts as the scientific director.

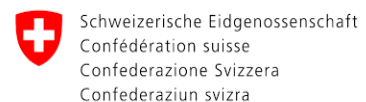
Orchid: J. Vanessa Huml: 0000-0003-4914-0007

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Expert in population and conservation genomics
Scientific director of Apigenix

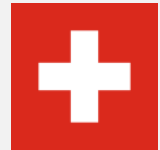


Friday 28 March 2025, Session 6

Biology and genetics of Amm

27.

**Sustainable concepts for the conservation of
Amm Populations**
Dr. Gabriele Soland



Will take place??


Bio: Experienced dark honeybee beekeeper, biologist and researcher (honeybee genetics). PhD in bee genetics; CEO of Apixgenix, the institute for Beegenetics. Former SICAMM chair, interim president for the modernization of SICAMM during autumn 2024. Elected president in January 2024. Co-organizer of the SICAMM online conference 2021, Co-organizer of the SICAMM conference in Savoie in 2023.

Email: g.soland@sicamm.org; info@apixgenix.com



SICAMM president
on leave
CEO Apixgenix,
Institute for
Beegenetics

Conservation of endangered honey bee taxa

28.	Queen Rearing Group Scheme (QRGS) for the Conservation of Amm in Ireland – A Practical Approach Colm O ´Neill	
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The Native Irish Honey Bee Society is an organisation dedicated to the preservation and conservation of our native honey bee (*Apis mellifera mellifera*, Amm).

The effects of non-native honey bees being imported to the island of Ireland is that their open mating causes hybridisation with its associated behavioural changes, for example high aggression and loss of good local characteristics. If not stopped, it will eliminate the native Irish black bee by corrupting the native bees genes beyond retrieval, or extinction by hybridisation.

NIHBS operate a Queen Rearing Group Scheme (QRGS) - a practical way to increase the supply of Amm and reduce the demand for imports. The scheme organises groups of like minded beekeepers, educating them and facilitating them in the skills of queen rearing and drone production.

Online regular educational meetings prepare the groups to be ready for the active beekeeping season when practical queen rearing is taught. Demonstrations of various methods of queen rearing are held regularly. Each group produces mated AND virgin queens to be distributed locally to fellow beekeepers. Increased drone production is also encouraged.

At the same time, the groups also create NIHBS Conservation Areas - an area of land set

aside as a "safe haven" for our only native Irish honey bee. As queens mate in the open air, over a radius of around a maximum of five miles (8km), the larger the area of land the better. When the queen flies and mates it is desirable that she mates with native Irish drones within the catchment of the Conservation Area.

As the number of NIHBS Conservation Areas increase it is an objective to create "corridors of conservation " linking one CA with another.

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Beekeeping organisation: NIHBS, Native Irish Honey Bee Society

Weblink: <https://nihbs.org/>




Native Irish Honey Bee Society
Apis mellifera mellifera



Committee member of
NIHBS

Friday 28 March 2025, Session 7

Conservation of endangered honey bee taxa

29.	Combined Geometric morphological wing research combined with DNA research on closed drone brood carried out on almost all colonies of the Wadden Island of Texel (NL)	
	Henk Kok	

Identify of Tofilsky has been used to determine the most Amm-like colonies. The aim is to breed queens from these colonies to replace the least similar ones. At the request of the beekeepers and the municipality of Texel, this hybridization, caused by the import of non-Amm queens, is being reduced. Bee samples were taken from 162 colonies of all 18 active beekeepers at 37 locations taken from an upper frame in each colony, where the left wing of 30 workers was taken. Microscopic preparations were made of these and then photographed. After measuring 4558 wings, 33 colonies could be selected from 12 beekeepers. These colonies are being bred to replace the 50 most hybridized queens found at 13 beekeepers. Since 2019, the selection, breeding and replacement of queens has been done on the basis of wing indexes and from 2021 on the basis of Identify at 2 beekeepers on Texel.

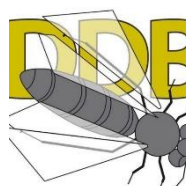
In addition to worker wings, a piece of closed drone brood (blue-eyed stage) was cut out, of which 10 pupae were used for DNA research. Initially 1 pupae per colony. The genome has been completely sequenced. Sequences were compared to a reference genome of *A. m. mellifera* (Ouessant, Bretagne Eynard et al. 2024) 10,132,863 genomic differences (SNPs) found between the 139 samples. The Texel colonies appeared in a PCA diagram to be completely separated from 7 Carnica colonies, which served as a comparison. The analyses still need to be completed. The aim is to store sperm from a number of selected drones in the gene bank managed by CGN in Wageningen.

Bio: Beekeeper since 1990. Long experience as beekeeping teacher and lecturer in different countries. Committee member of committee of the NBV (Netherlands Beekeepers Association). Since 2008 board member of the De Duurzame Bij Foundation, which aims to keep bees without treatment against varroa. We worked with Prymorski bees and switched to *Apis mellifera mellifera* in 2015. Since then we have been breeding queens from Texel and mating them on Neeltje Jans, an artificial island used by the DDB as a mating station since 2004. I have developed a differential equation to calculate the growth of the cumulative mite drop over a year. Participated in different projects (Sustainable Bee (DDB), Dutch bee research institute Bijen@WUR in Wageningen and in an European context led by Ghent.

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Beekeeping organisations: Duurzame Bij, 'T Landras, Professional association Dutch Beekeepers NBV (Nederlandse Bijenhouders Vereniging)

Weblinks: <https://www.deduurzamebij.nl/><https://inheemsedonkerebij.nl/>; <https://www.bijenhouders.nl/>



Experienced beekeeper, lecturer, teacher, participated in various project

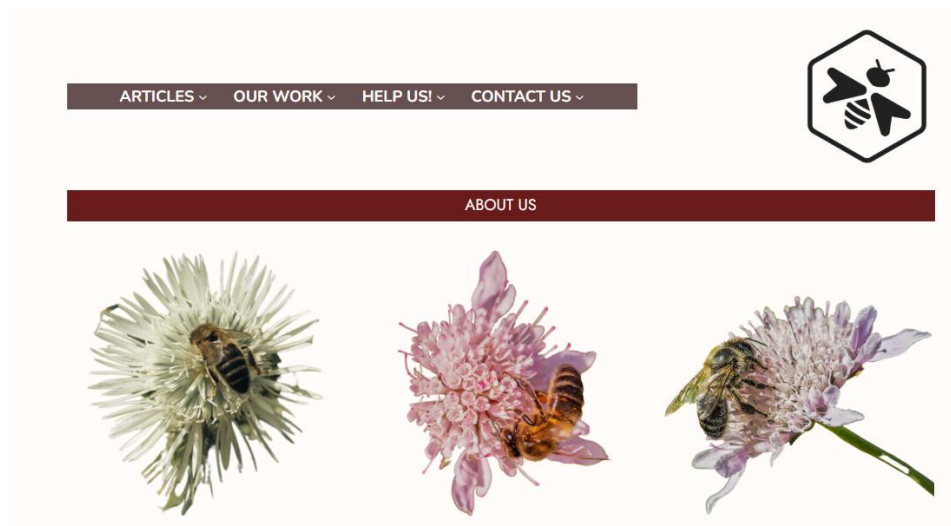
Boardmember of DDB,
Committee member of NBV

30.	25. The Maltese bee Dylan Farrugia	
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From the website <https://maltesehoneybee.org/>: The Honey Bee (*Apis mellifera*) is indigenous to Malta, as it is not found in Malta only. Meanwhile, the subspecies (race) of the Maltese Honey Bee (*Apis mellifera ruttneri*) is exclusively found in Malta, making it endemic to the Maltese archipelago.

It is evident that the characteristics of the Maltese Honey Bee are being compromised by honey bees of foreign breeds imported into our country. Since bees mate outside with minimal distinction between subspecies, this is leading to genetic mixing (hybridisation) of the Maltese Honey Bee, which had been isolated for thousands of years.

Consequently, the Maltese Honey Bee is indirectly facing extinction, gradually losing its distinctive ‘Maltese’ characteristics due to this mixing and the subsequent adaptation challenges it faces in local habitats and climate.



Email: nahlamaltija@gmail.com


Beekeeping organisation: Foundation for the Conservation of the Maltese Honey Bee

Weblink: <https://maltesehoneybee.org/>



**Foundation
for the Conservation
of the Maltese Honey Bee**

Amm conservation work in Germany and France

31..	<p>Germany – Bundesverband Dunkle Biene Deutschland e.V.</p> <p><u>Johannes Peter</u> and Jan Gutzeit</p>	
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The Federal Association of Dark Bees Germany (Bundesverband Dunkle Biene Deutschland e.V.) promotes the conservation and breeding of *Apis mellifera mellifera*.

The first steps towards establishing a group of beekeepers interested in the dark honey bee was initiated by Jan Gutzeit in 2014. After this, additional steps were undertaken during 2017 and 2019 towards founding the current Association.

The Association focuses today on public outreach, political advocacy, breeding programs, and collaboration with other beekeeping associations.

The organization has around 550 members and aims to secure sustainable breeding within Germany.



Ambassador & patron for the dark bee in German speaking areas: Sarah Wiener, successful chef, entrepreneur and author. She has been campaigning for a sustainable agricultural and food transition in the EU since 2019.

Bio: Inspired to beekeeping since early childhood thanks to grandparents. Has worked with four different bee subspecies (*Carnica*, *Buckfast*, *Ligustica*, *Sicula*). Started with dark bees in 2012. In 2017, together with Jan Gutzeit, he founded the German Dark Bee Association, Bundesverband Dunkle Biene Deutschland e.V. Today, this is the largest dark bee organisation in Germany, containing a broad spectrum of members, which includes not only experienced breeders and keepers of the dark bee, but also primarily conservationists, entomologists, and representatives of the beekeeping guild. The association's stated goals are correspondingly diverse, including conservation breeding, support for reintroduction programs, imparting knowledge about this honey bee subspecies native to Germany, and, of course, the exchange of experiences. To offer each member the right field of activity, we have created various working groups. In addition to the beekeeping group, there is also one for natural beekeeping and breeding. Other profession: pharmacist.

Email: johannes@bv-dunkle-biene.de

Beekeeping organisation: Bundesverband Dunkle Biene Deutschland e.V.


Weblink: <https://www.bv-dunkle-biene.de/>



Applied for
SICAMM
membership

Chair (together with Jan Gutzeit)
of German dark bee association,
Bundesverband Dunkle Biene
Deutschland e.V.

Amm conservation work in Germany and France

32.	Germany – Zuchtverband Dunkle Biene Deutschland e.V. and its activities Jörg Schock, Christine Hagen, Alexander Macho	
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We would start with a recap of the last ten years of Zuchtverband and his activities and results. Followed by excursion to a few programs executed with different Universities & Partners.

Particular:

- Moonschine Mateing with University of Berlin / Hohen Neudorf

-Kryproconservation of Drone Sperm

- SetBie: Program of Selection of varrotollerant Bee-s. Buiding up Breeding Lines which stabilized the Behaviors. Feeding also into genetic analysisof the Behaviors.

That a summary of actual running or starting Programs . Hereby we are focusing to scale up the knowledge to bigger community. (Program proDIBI ; Varroa2033).



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Beekeeping organisation: – Zuchtverband Dunkle Biene Deutschland e.V.

Weblink: <https://www.dunkle-biene.com/>




Applied for membership

Chair (together with
Christine Hagen) of
Zuchtverband Dunkle
Biene Deutschland
e.V.

Friday 28 March 2025, Session 8

Amm conservation work in Germany and France

33.	Germany – Bavaria Der Landesverband Dunkle Biene Bayern., e.V. Armin Lochner (represented by Jorg Schock, DE)	
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The Bavarian Dark Bee Association is committed to preserving and disseminating dark honey bees and to educating and supporting other beekeepers. We would like to work together in Europe and make the preservation of the dark bee accessible to everyone. We are breeding for conservation breeding and pure breeding and are always open to new things, especially in the exchange of new experiences, which a beekeeper can never have enough of. We hope for a very good working relationship with everyone and a great collaboration. In 2019 the *Apis mellifera mellifera* breeding group founded the Landesverband Dunkle Biene Bayern e.V. Our association is active in the entire federal territory and tirelessly striving for maintaining and resettlement. We currently have 110 members and homes the German beekeeping association to DIB. We strive to resettle our once domestic bee (*Apis Mellifera Mellifera*) in Germany. Our honey bees, which are widespread in Germany and in many European countries today, are mostly selected on gentleness and honey income. Thus, these bees are no longer able to defend themselves against many diseases such as the Varroa mite. A survival in the wild, without the help of a beekeeper, is no longer possible. After the wintering in spring, there is very often a high loss of bee colonies. For the most part, this also has its cause in the overbreeding of these bees. Here the bee is specifically taken away by selection and breeding. The dark bee has still retained its natural properties and has hardly been processed breedingly.

We want to preserve and protect these properties. For this reason, the state association of the dark bee only comes into question conservation breeding in order to preserve the genetic properties. We are always open to new members and interested people who want to campaign for a resettlement of the dark bee in Germany. This requires a strong community. That is why you also become a member of us to re-establish the dark bee in Germany. This is the only way we can make public hearing, build up document spots with state protection and give back something to nature. You are not left alone as a member. We carry out training and information evenings in the winter months. You will also receive exclusive access to our very extensive online database around the dark bee.

Bio: Passionate beekeeper of the *Apis mellifera mellifera* and its preservation and breeding and always helpful to other beekeepers who want to preserve the dark bee. Together with others the founder of the Landesverband Dunkle Biene Bayern e.V. Chair of the Amm association in Bavaria.

Email: vorstand@landesverband-dunkle-biene-bayern.d; schock.joergqweb.de

Beekeeping organisation: Der Landesverband Dunkle Biene Bayern., e.V.

Weblink: <https://dunkle-biene-bayern.de/>




Armin Lochner



Jörg Schock, representant of A. Lochner

Amm conservation work in Germany and France

34.	Austria – Austrian Mellifera Breeders (AMZ) Dietmar Eppenschwendtner (represented by Jörg Schock, Germany)	
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In December 2010, the breeding groups joined forces to form the association "Austrian Mellifera Breeders", or AMZ for short. All breeders and breeding groups of the dark bee in particular from Austria and the Bavarian region are cordially invited to join and participate! With this merger, we are putting breeding work on a solid legal and professional basis.

The Salzburger Alpenland breeding group as a subgroup of the Maxglan Beekeepers' Association and the Nigra-Alpenland Inner Gebirg (AIG) breeding group as a subgroup of the Sankt Veit im Pongau Beekeeping Association and the Breeders' Group in Tyrol, Braunelle breeding line, are working together with fellow beekeepers to preserve this genetically valuable treasure for posterity and to secure and spread the dark bee population in its original habitat.

Milestones of the last few years:

- Participation in performance breeding in Austria and thus the breeding value estimation in the BeeData database.
- Creation of a separate mating station, the S2 on the Schwabalm
- Annual operation of 2 mating stations in the province of Salzburg, S2 and S6 in St. Martin bei Lofer <http://www.dunkle-biene.at/index.php/working-on-your-site>
- Handling of a funding program by Arche Austria
- Redesign of the website www.dunkle-biene.at
- Design and further development of the AMZ brochure
- Dark Bee Banderole for Honey Jars
- Production of an image film of the AMZ and the Dark Bee <https://youtu.be/neXlVA5rC4?si=Ud782r8R-L6c1E8Z>
- Regular DNA tests

Email: eppenschwendtner@gmx.at; schock.joergqweb.de

Beekeeping organisation: Austrian mellifera Züchter (AMZ)

Weblink: <http://www.dunkle-biene.at/>




Alois Reiter, founder of AMZ



Jörg Schock, representative of AMZ

Amm conservation work in Germany and France

35.	<p>France: Conservatory of the local bee in France with FedCAN</p> <p>Klébert Sylvestre</p>	
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The European Federation for the Conservation of the Dark Bee (FedCAN) was established on December 16, 2015. Its goal is to promote and preserve the dark bee, which is endemic to Western Europe. The bee is at risk of losing its unique genetic heritage due to accidental hybridization with imported varieties of domestic bees. These varieties are currently preferred by the vast majority of professional beekeepers.



The presentation will be about what's happening in France with The FEDCAN and in the field beekeeping with the Blackbee.

FEdCAN is composed of 12 founding member, including:

- a dozen Black Bee Conservatories ,
- the NGO POLLINIS, <https://www.pollinis.org/>
- the French dark bee specialist Dr. Lionel Garnery (see presentation 31)

Bio: President of the Savoie Conservatory, vice-president of FedCAN,

Email: aksilvest@wanadoo.fr

Beekeeping organisations: CETA: Conservatoire de l'Abeille Noire de Savoie, FedCAN: La Fédération européenne pour la Conservation de l'abeille noire

Weblinks: <https://conservatoire-abeille-noire73.fr/>, <https://www.fedcan.org/>




President of
the Savoie
Conservatory,

Vice-
president of
FedCAN

SICAMM delegate
Organizer of the
SICAMM meeting
2023

Friday 28 March 2025, Session 8 – to approve
Amm conservation work in Germany and France

36.	Genetic impact studies on honey bee populations from Normandy: In a search for conservatory and mating stations for the dark honey bee Dr. Lionel Garnery and H. Legout	
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In France, in response to the significant losses linked to the use of neonicotinoids in the mid-1990s and with the aim of rebuilding the herd, the level of importation of colonies/queens of various origins has increased significantly. More recently, new imports from the Iberian Peninsula or North Africa have been made with the aim of anticipating global warming. All of these imports have had repercussions in a significant increase in the levels of nuclear hybridization and mitochondrial introgression which can reach 40% in certain regions.

At the request of the regional president and within the framework of the conservation of Normandy breeds, we have set up a study which aim firstly at determining the levels of nuclear hybridization and mitochondrial introgression of bee populations in the Normandy region and secondly at characterizing the best locations for setting up either conservation zones or fertilization stations.

The study presented here, concerns the analysis of 866 colonies distributed in the 5 departments of the Normandy region. To carry out this study, we searched for the maternal origin of each colony using the COI-COII test of mitochondrial DNA, and characterized nuclear genetic diversity using 14 microsatellite loci.

As a result, the average level of mitochondrial introgression for the Normandy region is estimated at 24%, while the average level of nuclear hybridization is 15%. Geographical mapping of mitochondrial and nuclear diversities for each department has made it possible to characterize 10 potential areas with the lowest levels of hybridization. These areas correspond to potential usable locations for the establishment of fertilization stations or conservation areas.

Bio (text from FEdCan website): Dr. Lionel Garnery is the French specialist on the black bee. He is also the president of FEdCAN in his personal capacity. He has worked for over 20 years at the CNRS in Gif-sur-Yvette. His team of scientists has carried out most of the genetic analyses at the Conservatories to determine their hybridization rates with other bee subspecies.

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Affiliation: University Paris Saclay ,IDEEV, UMR 9191 CNRS-UPS-IRD

Beekeeping organisations: FedCAN

Weblink: <https://www.egce.universite-paris-saclay.fr/?p=731>

Researchgate: <https://www.researchgate.net/profile/Lionel-Garnery>



More than 20 years of
research on the dark
honey bee

President of FedCAN

Saturday 29 March 2025, Session 9

Honey bee health and fitness

37.

Identifying and selecting for varroa-resistant traits

Steve Riley



The presentation explains the practical steps beekeepers can take to identify and select for observable varroa-resistant traits in their colonies.

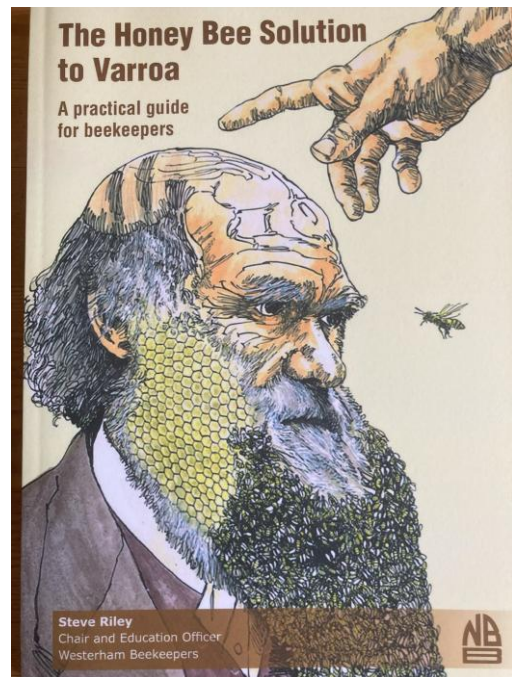
The monitoring methods are open to all beekeepers and used in the selection programme at Westerham Beekeepers (south-east England), who are in the 8th season of not using miticide treatments, with c.130 colonies in the project. Locally adapted dark honey bees are used, with open-mating.

The biology underpinning the bees' mechanisms for controlling their mite population will be explained.

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Beekeeping organisation: Westerham Beekeepers and member of BIBBA

Weblink: <https://westerham.kbka.org.uk/>



Bio: Steve is the author of the book “The Honey Bee Solution to Varroa” and a member of the “Path to Varroa-resistance in the UK” team that launched the education and science website: www.varroaresistant.uk in April 2023. He is the Education Officer and former Chair of Westerham Beekeepers. Steve presents on Varroa-resistance to beekeeping associations around the UK, including sessions at the BBKA Spring Convention, the National Honey Show, BIBBA Conferences, and also internationally in Ireland, Germany and the USA.



**Westerham
Beekeepers**



Varroa expert

Education officer and
former chair of
Westerham Beekeepers

Saturday 29 March 2025, Session 9

Honey bee health and fitness

38.

Identifying and selecting for varroa resistant traits

Emeritus Professor Dr. Jacques van Alphen



English honeybee workers fly home from a nectar source with only a partially filled crop and do not maximise the harvest rate. By carrying smaller loads, they reduce flight costs and live longer. A comparison of the metabolic rate (MR) of worker bees of different subspecies shows that MR increases towards the south: black honeybees (*A. m. mellifera*) have a lower MR than *A. m. carnica*, which has a lower MR than *A. m. ligustica*. This subspecies has a lower MR than the Egyptian honeybee (*A. m. lamarckii*) and the latter has a lower MR than the tropical African subspecies, *A. m. scutellata*. Natural selection via climate and ecology shapes the MR of worker honeybees. Contrasting the ecology of black honeybees in northern Europe with that of *A. m. scutellata* in the Okavango Delta illustrates the importance of ecology. *A. m. scutellata* bees arrive in the Delta at the beginning of the flowering season in early June. They must establish a colony and reproduce before the period of reduced food availability from mid-November to the end of May. The majority of *A. m. scutellata* colonies then abscond and migrate eastwards to reproduce again before returning. Rapid reproduction to counteract a high predation rate is only possible with a high MR. Black honeybees do not suffer high mortality, but have to survive a long cold winter and need a large store of honey to do so, A lower MR makes it easier to survive the winter. Workers of *A. m. mellifera* have much longer lifespans than those of *A. m. scutellata*. Artificial selection for higher MR is a consequence of trying to breed bees that produce more honey. A higher MR results in a shorter lifespan. In the last 50 years, the life span of honeybees in the USA has decreased from 34.3 to 17.7 days. Simulation models show that the reduction in lifespan leads to a reduction in honey production. As predicted, honey production in the US has decreased over the last 50 years, showing a paradoxical effect of artificial selection.

Bio (text from BIBBA): Dr. Jacques van Alphen is emeritus professor of animal ecology. From 1975 to 2011, he worked at Leiden University as a researcher and lecturer. From 2007 to 2009, he held an EU Chair of Excellence, teaching behavioural ecology at the University of Rennes in France. He has published widely on the behavioural ecology of parasitoids, their application in biological pest control, and on speciation in tropical fish. Now he is affiliated with the Naturalis biodiversity Centre as correspondent. After retirement he published a review on the role of (natural) selection in honey bee resistance against Varroa mites. He also published a book (in Dutch) on the evolutionary ecology of honey bees. Google scholar: <https://scholar.google.com/citations?user=prsR23QAAAAJ>

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Address: Naturalis Biodiversity Center, Leiden, The Netherlands



Universiteit
Leiden
The Netherlands

Saturday 29 March 2025, Session 9

Honey bee health and fitness

39.

Nosemas and viruses in the M and C evolutionary lineages of honeybees: a case study from Lithuania

Dr. Laima Blažytė-Čereškienė, Vesta Skrodenytė-Arbačiauskienė, Svetlana Orlovskytė, Eduardas Budrys, Vincas Būda



Honey bees of the subspecies *Apis mellifera mellifera* have existed on the territory of Lithuania since ancient times. The region-specific foraging conditions, frequent honeydew, cold winters and changeable springs have resulted in a winter-resistant ecotype of native bees that is adapted to local conditions. Previous work by Lithuanian researchers has suggested that the behavioural and biological characteristics of *A. m. mellifera* bees make them more resistant to diseases (foulbrood, nosemosis, varroasis), but no studies have been carried out.

The aim of our study was to compare the viral and microsporidian infection of a native subspecies (*A. m. mellifera*) (lineage M) and an introduced subspecies (lineage C) of honey bee colonies kept in the same apiaries in Lithuania. Four viruses (deformed wing virus (DWV), sacbrood virus (SBV), black queen cell virus (BQCV), acute bee paralysis virus (ABPV)) and two species of microsporidia (*Nosema ceranae* and *N. apis*) were tested in the colonies.

Pathogen analysis revealed *N. ceranae* in 33.3% of the colonies and *N. apis* in one colony (1.7%). Bee viruses were detected in 95% of the colonies. BQCV was the most prevalent in 93.3%, while SBV was detected in 50% of the colonies and DWV was detected in 10% of the colonies. ABPV was not detected in the colonies studied. No statistically significant differences were found between the viral and microsporidian infection rates of colonies from different M and C lineages, but there were clear differences in the pathogens in individual apiaries. Preliminary results suggest that colonies kept in the same apiary tend to share the same pathogens, regardless of whether they are native or introduced.

Bio of main presenter: Laima Blažytė-Čereškienė is a senior researcher and the current head of the Laboratory of Chemical and Behavioural Ecology at the Nature Research Centre, Lithuania. She holds a Ph.D. in Biology with a focus on honey bee learning from Institute of Chemical Ecology of Vilnius University and Vilnius Pedagogical University. With a strong background in chemical ecology and insect behaviour, her research interests span across honeybees, wild bees, coleopterans, and lepidopterans, focusing on topics like attractants, repellents, pollinator-plant interactions, and pest-host relationships. Now she is particularly dedicated to studying honey bee diseases, and the conservation of the Lithuanian native honeybee (*Apis mellifera mellifera*). Since 2021, she has also served as the chair of the Main Board of the Lithuanian Dark Bee Association. Orchid: <https://orcid.org/0000-0002-0801-0196>. Weblink: <https://gamtostyrimai.lt/en/darbuotojai/laima-blazyte-cereskiene/>

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Affiliation: Nature Research Centre, Vilnius, Lithuania

Beekeeping organisation: Lithuanian Dark Bee Association



**LIETUVOS
TAMSIOJI BITĖ**

Chair of the Mainboard
Lithuanian Dark Bee
Association



Candidate to the
SICAMM
Mainboard

Saturday 29 March 2025, Session 9

Honey bee health and fitness

40.

Population genetics and structural computational biology of honey bee Vitellogenin identify genetic signatures in an endangered honey bee subspecies

Leipart, V., Garcia I Carmona, Sandve, S., Cartwright, R., O., Orengo C., Fraternali F., Amdam, G.



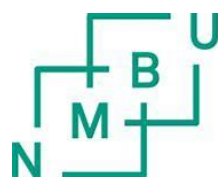
An ancient yolk protein, Vitellogenin (Vg), provides immune-related protection for pollinators. In addition, Vg regulates social behavior, transports nutrients, and is necessary for reproduction in most egg-laying animals. Vg is well-studied in honey bees (*Apis mellifera*) for its multifunctionality, but little is known about its genetic variation and impact on protein function. Motivated by these questions, we use a novel approach for Vg: population genetics coupled with structural computational biology. We compiled a dataset of vg sequences from honey bees with varying breeding stocks and geographical locations and found that vg is undergoing positive selection, likely due to local adaptation. Also, the vg gene commonly exists in two versions – one of which is almost only identified in an endangered subspecies, *A.m.mellifera* (*A.m.m*). We used structural bioinformatics, molecular dynamics simulations and machine learning to identify functionally important residues and examine if protein-coding variants conferred any structural impacts. For the first time, we show the dynamic nature of a Vg and find that a deletion in a highly conserved subdomain had no damaging structural impact. The deletion was almost exclusively identified for *A.m.m* honey bees and due to the population history of near extension and human intervention, an assessment of this Vg variant is not only theoretically interesting but also relevant for subspecies conservation efforts. Our study contributes to understanding the genetics of *A.m.m*, which is valuable for honey bee diversity and fitness. Linking a Vg variant to a unique subspecies indicates that local adaptation affects Vg and increases our understanding of Vg's structure-function relationships, which is relevant beyond the fitness of rapidly declining pollinators since Vg's multifunctionality is documented for other egg-laying animals like chickens and fish.

Bio: I'm a postdoctoral researcher at the Norwegian University of Life Sciences (NMBU), currently on a research stay at University College London (UCL). My work combines computational biology with experimental data to investigate Vitellogenin (Vg), an essential protein for health and behavior in most egg-laying animals. My research focuses on Vg in honey bees, aiming to uncover the molecular mechanisms behind its diverse functions and shed light on its roles in reproduction, nutrition and immunity for honey bees and other egg-laying species. My PhD from NMBU was honored with the Alf Bjørseth's Inspiration Award for the best doctoral work in renewable energy and life sciences. My doctoral research achieved important milestones, including the first full-length structure prediction for Vg and a comprehensive collection of honey bee Vg genetic variation. The genetic variation revealed unique aspects in the Dark honey bee, which I will talk about at the conference. My ongoing work seeks to understand Vg's structure-function relationships across species with potential implications for sustainable and resilient agricultural and food systems.

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Affiliations: Faculty of Environmental Sciences and Natural Resource Management, Norwegian University of Life Sciences, Norway and Department of Structural and Molecular Biology, University College London, UK.

Weblinks: <https://www.ismb.lon.ac.uk/2023/09/27/vilde-leipart-awarded-alf-bjorseths-inspiration-award/>



Awarded Alf Bjørseth's Inspiration Award for her PhD work "*Understanding the structure-function relationship of honey bee Vitellogenin*".

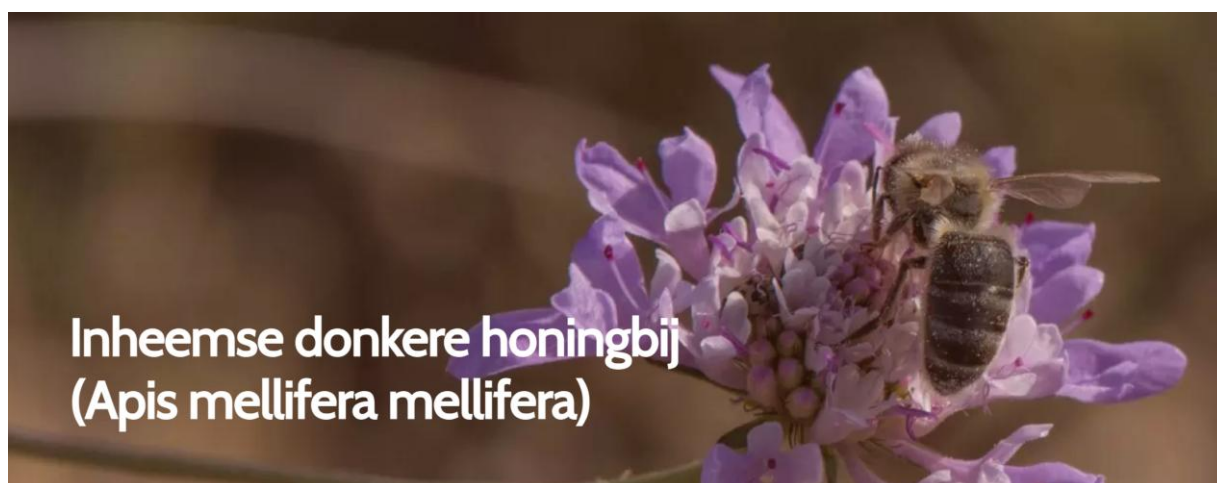
Saturday 29 March 2025, Session 10

Amm conservation work in Belgium, Holland, Poland and Switzerland

41.	Country report – The Netherlands Peter Kassies	
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The conservation and breeding efforts of the Black Honeybee (*Apis mellifera mellifera*) in the Netherlands are gaining momentum, with Texel Island playing a central role. Texel hosts approximately 190 Black Honeybee hives, where natural mating ensures genetic diversity. Three key developments have reinforced the Black Honeybee's position on the island: (1) designation as "Species of the Year" by the Rare Domestic Animal Breeds Foundation, (2) a municipal ban on non-Black Honeybee apiaries to prevent hybridization, and (3) an ongoing genetic study by Wageningen University.

t' Landras currently supports two Black Honeybee mating stations: Goudkamp and Neeltje Jans. These initiatives highlight the growing national efforts to preserve the Black Honeybee's genetic integrity and promote sustainable breeding programs.



Bio: Peter Kassies is an avid beekeeper who hosts his bees on the roof of the 6th floor of his flat in the middle of Amsterdam, the Netherlands.

Since 2024 he coordinates the grafting and mating station activities for the t'Landras and De Duurzame Bij organisations.

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Beekeeping organisation: T Landras, the Netherlands

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SICAMM
delegate
Coordinator
of mating
stations

Amm conservation work in Belgium, Holland, Poland and Switzerland

42.	<p>Country report – Genetic Diversity in the Low Lands (Pays-Bas – The Netherlands)</p> <p><u>Hans Peter Verkooijen</u> & Piet Verkooijen</p>	
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The Netherlands' 'Het Conservatoire' is a foundation in the Low Lands (Pays-Bas) dedicated to reintroducing the native *Apis mellifera mellifera* (AMM) into natural environments. Currently, less than 1% of honey bee colonies in the Low Lands consist of AMM. Due to misinformation, beekeepers are often hesitant to work with the indigenous honey bee and instead prefer *Apis mellifera carnica* (Carnica) or *Apis mellifera* Buckfast hybrids. The majority of beekeepers (75%) manage hybridized bee populations. In collaboration with beekeepers who maintain honey bee colonies within or near nature reserves, the foundation establishes AMM conservatories. These conservatories are initially supplied with breeding stock—first through the introduction of queen bees and later by providing drone colonies. 'Het Conservatoire' is currently active in nearly ten conservation areas within nature reserves, aiming to restore biodiversity through the reintroduction of indigenous honey bees. Additionally, the foundation operates three dedicated mating areas and collaborates with other mating stations across the Low Lands. Since drones play a crucial role in maintaining genetic diversity, the foundation ensures that introduced queens originate from a haplotype native to the Low Lands, while the drones are sourced from genetically diverse AMM haplotypes. The foundation is actively seeking regions worldwide where haplotypes of the Low Lands (The Netherlands) can still be found. To support this effort, it conducts or utilizes DNA analyses from external sources, while morphological studies are performed in-house. The board of 'Het Conservatoire' is also engaged in research to improve the challenging breeding conditions for AMM in the Low Lands. The goal is to develop solutions that align as closely as possible with the species' natural reproductive behavior. Based on these breeding studies, the foundation offers colony multiplication courses to beekeepers who practice natural beekeeping.

Bio: *Piet* holds dual engineering degrees in Mechanical Engineering and Process Technology (Nuclear). He works in authority engineering and assessment. With 50 years of experience as a beekeeper, he has been a pioneer in the artificial insemination of honeybees. He represents queen breeders in the National Beekeepers Association of the Netherlands (NBV). *Hans Peter* is a just retired teacher of Economics and an educational developer at Breda University of Applied Sciences (BUAS), where he worked for 40 years. Now he is serving as a board member in multiple associations and is also a beekeeping instructor. He breeds AMM (*Apis mellifera mellifera*) drones to enhance the genetic diversity of this honeybee subspecies in the Low Lands (Pays Bas). Currently, he is actively engaged in controlling *Vespa velutina* in his Province Noord-Brabant, using transmitter technology and telescopic lances.

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Beekeeping organisation: Het Conservatoire


Weblink: <https://hetconservatoire.nl/>



50 years experience as
beekeepers

Amm bee breeding and
insemination

Controller of *Vespa velutina*

43.	Country report: Belgium – ZwarteBij.org Jürgen Boterberg	
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ZwarteBij.org is a dark bee association with approx.. 250 members distributed mainly over Belgium and The Netherlands.

The focus of the organization is building up an A.m.m. conservation population in Flanders and providing our members, and by extension the Flemish beekeepers, access to A.m.m. breeding stock (via distribution of queen larvae and access to the population area for queen mating). The conservation project is supported by two Belgian universities (Ghent and Leuven) and by significant subsidies via EU and Flemish programs.

The project is located in a National park (Bosland) and aims to maintain 100 colonies (Varroa) treatment-free. It is partly a Blackbox selection program, supported by DNA selection (hybridization) and a behaviour selection, based on removing the 4th quarter (=selection with the aim to keep a diverse genetic basis).

Additionally the population is part of a University led (Gent) selection program with focus on local adaptation, vitality performance and Varroa marker identification.

Together with the University of Leuven, the population is used to identify genetic lines of A.m.m. with a strong winter brood-stop behaviour (independent from temperature) and identifying the genetics behind this unique behaviour.

Bio: Jurgen Boterberg, Chairman of the Belgian a.m.m. association **ZwarteBij.org** and project coordinator for the population program in "Bosland". Born in 1973, living in East-Flanders and passionate beekeeper for little more than a decade. Professionally a Quality and Compliance manager in the chemistry sector and ISO auditor.

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Beekeeping organisation: ZwarteBij

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SICAMM delegate

Chairman of
ZwarteBij.org

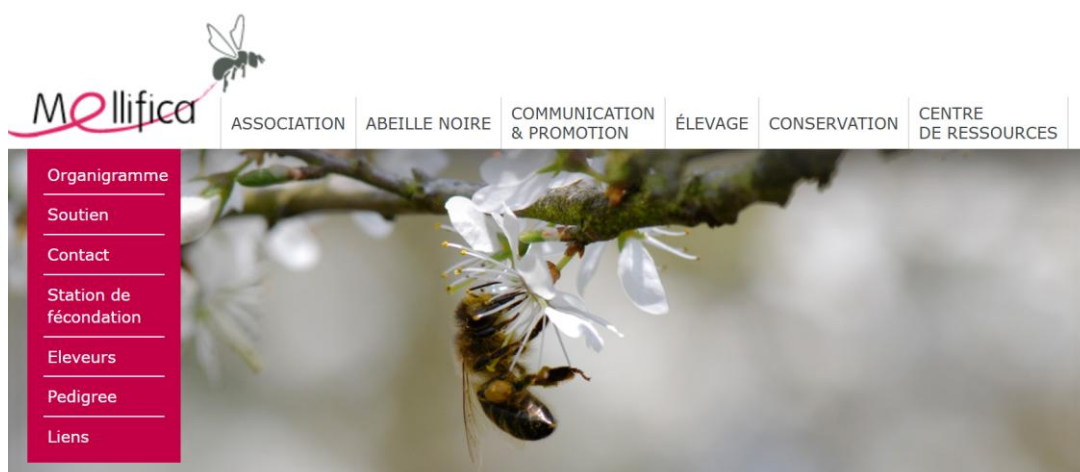
Saturday 29 March 2025, Session 10

Amm conservation work in Belgium, Holland, Poland and Switzerland

44.	Country report: Belgium – Mellifica Pauline Hubert	
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Mellifica and the dark bee conservation in Wallonia (Belgium) : history and current action :

The place of the European dark bee in Wallonia (Belgium) has quite evolved for the past years. This presentation gives you a preview of the situation in the past and her evolution. This situation is in link with the creation of Mellifica. Mellifica is a 20 year old association with more than 300 members. The association has multiplied her actions of conservation with the help of her multiple partners (politics, naturalists associations, beekeepers associations etc.). Mellifica provides help to beekeepers to ease their work with the dark bee. The association also wants to raise awareness to the general public. Discover some of our most important activities in this presentation. All the actions are done with one passion: the dark bee !



Bio: My interest in beekeeping started with my grand-parents. In 2023, I became the coordinator of Mellifica and my journey as a beekeeper began at the same time. I'm in my second year of beekeeping course at Mellifica. I'm managing the first colonies of Mellifica since last year. Other profession: Bioengineer.

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Beekeeping organisation: Mellifica

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SICAMM
Delegate

Coordinator
of Mellifica

45.	Country report - Poland <u>Dr. Łucja Skonieczna</u> , Dr. Patrycja Soltysik	
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Protection of the Kampinoska M-Line Bees - Current Status In 2024, Pasieka Sawa became a key participant in the program for the protection of the Kampinoska M-line bees, aimed at preserving and developing this unique bee line within the Kampinos National Park. The leading apiary began the program by breeding six queen bees registered in the breeding book, as well as eight additional queens evaluated in 2024. The protective measures were divided into stages: multiplying breeding material, creating origin groups, and later introducing rotational mating. In 2024, approximately 170 queen bees were bred, of which 140 were inseminated and distributed to collaborating apiaries. The quality assessment of the queens is planned for 2025, a crucial period for the further progress of the program. The program is being carried out under the supervision of the Institute of Zootechnics in Balice, with its effectiveness monitored by the National Animal Breeding Centre. Pasieka Sawa is operating in line with scientific guidelines, supported by the Kampinoska Association, which actively educates the public about the role of bees in the Kampinos ecosystem and promotes Kampinos honey. The program also enjoys the support of local beekeepers and institutions.

Summary: The protection of the Kampinoska M-line bees aims to preserve and develop this rare bee breed, whose importance to the ecosystem of the Kampinos National Park is invaluable. In 2024, intensive breeding was launched, and the program is supported by both scientific institutions and local associations.

Bio: For over 30 years, I have been involved in breeding programs for *Apis mellifera carnica* and in conservation programs for *Apis mellifera mellifera*, specifically the Kampinoska line, in Kampinos National Park near Warsaw. Currently, I am implementing this program in collaboration with the newly established Kampinoska Association, which is represented here by the Management Board—myself and Patrycja Soltysik. My research is based on carefully controlled queen bee mating, using artificial insemination methods. Each beekeeping season, I inseminate approximately 1,500 queen bees. Additionally, I am participating in the BeeLieve project (2024–2028), which aims to update beekeeping education programs. I also collaborate with beekeepers involved in the Varroa2033PL initiative, primarily focusing on combating Varroa destructor using biotechnical methods.

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Beekeeping organisation: Kampinoska

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SICAMM Delegate

Mainboard member of the
Polish Amm association
(Kampinoska)

Researcher, queen bee breeder

Saturday 29 March 2025, Session 10

Amm conservation work in Belgium, Holland, Poland and Switzerland

46.	Country report - Switzerland Dr. Gabriele Soland	
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Will take place?

Bio: Experienced dark honeybee beekeeper, biologist and researcher (honeybee genetics). PhD in bee genetics; CEO of Apixgenix, the institute for Beegenetics. Former SICAMM chair, interim president for the modernization of SICAMM during autumn 2024. Elected president in January 2024. Co-organizer of the SICAMM online conference 2021, Co-organizer of the SICAMM conference in Savoie in 2023.

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SICAMM president
on leave

CEO of Apigenix

Saturday 29 March 202, Session 11

Honey bee miscellany

47.

Honey quality and requirements of quality

Oksana Bekkevold



MIN SIDE



HONNINGCENTRALEN

NETTBUTIKK

HONNING OG LØNNESIRUP

OPPSKRIFTER

OM HONNING

SPØRSMÅL & SVAR

OM OSS



- Honningcentralen -SA – history and place at the market
- Norwegian honey – classifications and quality requirements
- Bees wax as important part of honey production – difference in Norwegian and EU regulation

Bio:

- Education: Bachelor's degree in food science and technology, Sumy Agriculture University, Ukraine
- Experience: Working within food quality in beverage industry (Coca Cola Norge AS), agriculture products – vegetables (Bama Gruppen AS), honey (Honningcentralen SA since 2018).

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Сумський
Національний
Аграрний
Університет

Quality Manager
of
Honningcentralen
SA

Saturday 29 March 202, Session 11

Honey bee miscellany

48.	Apitherapy in Lithuania Dr. Neringa Sutkevičienė, Šarūnė Sorkytė, Povilas Rimkus, Sonata Trumbeckaitė	
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Apitherapy is the complex use of bees, bee products, beehive air therapy, apipuncture, and related treatments to alleviate discomfort caused by disease. Products of the honey bee (*Apis mellifera*), such as honey, propolis, pollen, bee bread, bee venom, beeswax, and royal jelly, have long been valued for their diverse biological effects and medicinal properties. These products are widely used in human and veterinary medicine, with growing scientific interest validating their applications as natural alternatives to modern treatments. The Lithuanian Apitherapy Association (LAA), founded in 1991, traces the roots of apitherapy in Lithuania to 1962–1966, when studies at Kaunas Clinics investigated the effects of fresh royal jelly on heart disease patients. Subsequent research expanded to include propolis ethanol extracts, royal jelly, and bee venom. Today, medical professionals, biologists, researchers, veterinarians, and other experts are actively investigating the potential of bee products across diverse scientific disciplines. LAA is also a member of the International Federation of Apitherapy (IFA). On January 14, 2020, Lithuania officially recognized apitherapy by adopting the Law on Complementary and Alternative Health Care (CAHC). This law classifies apitherapy as one of 15 CAHC services, along with hypotherapy, phytotherapy, hirudotherapy, canine therapy and others. It also establishes specific qualification requirements for the licensing of CAHC apitherapy specialists. With its deep historical roots and ever-expanding scientific base, apitherapy continues to grow in importance as a holistic approach to health and wellness. Its natural, sustainable methods not only complement conventional medicine, but also address growing consumer demand for alternative treatments. The diverse range of bee products provides effective, evidence-based solutions for managing a wide range of health challenges, making apitherapy an essential part of modern healthcare strategies.

Bio of main presenter: Dr. Neringa Sutkevičienė (N.S.) is a lecturer at the LSMU Veterinary Academy, researcher and head of the Animal Reproduction Laboratory. N.S. has been a member of the Lithuanian Apitherapy Association since 2016. Main research areas: reproduction, veterinary andrology and veterinary use of bee products.

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Affiliation: Animal Reproduction Laboratory, Faculty of Veterinary Medicine, Veterinary Academy, Lithuanian University of Health Sciences

Google scholar: <https://scholar.google.lt/citations?user=122Hlq0AAAAJ&hl=lt>

Weblinks: <https://lsmu.lt/en/about-lsmu/structure/veterinary-practice/stambiuju-gyvunu-klinika/>;
<http://www.apiterapija.eu>



LITHUANIAN UNIVERSITY OF HEALTH SCIENCES
**FACULTY OF VETERINARY
MEDICINE**

Expertise:
veterinary andrology,
reproduction,
veterinary use of bee
products

Saturday 29 March 2025, Session 12

Amm conservation work in UK, Wales and the Republic of Ireland

49.

The United Kingdom and Wales Bee Improvement & Bee Breeders Association



Roger Patterson



BIBBA has been in existence since 1963 and still has the same main aims as the founders had.

Beekeeping and the opportunities presented in the modern world inevitably mean changes will be made.

This short presentation discusses BIBBA past and present



Bio: Roger Patterson started beekeeping in 1963 on a farm in West Sussex. For about 15 years he kept about 130 colonies, but now keeps 35-40, in addition to managing 40-60 at his local beekeeping association, where he is the apiary manager. He has always kept locally adapted bees and has carefully selected from those with desirable characteristics. Much of the UK suffers from the effects of importation and Roger ruthlessly culls any undesirable queens. As a prolific speaker and demonstrator, he has travelled widely and with a combination of seeing other bees, beekeepers and conditions, together with removing several hundred free-living colonies, he has built up an understanding of the type of bee that survives well in his region.

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Beekeeping organisation: Bee Improvement & Bee Breeders Association


Weblink: <https://bibba.com/>



President of BIBBA

SICAMM delegate

Amm conservation work in UK, Wales & the Republic of Ireland

50.	Ireland - The Native Irish Honey Bee Dr. Lic. Frankie de Dobbelaere	
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The Native Irish Honey Bee Society (NIHBS) was formed in 2012. It grew from the Galtee Bee Breeding Group, GBBG a group of beekeepers, who realised 35 years ago that pure honey bee populations of *Apis mellifera mellifera* (Amm) still exist in Ireland but are in danger and need protection, which became the objective of NIHBS.

NIHBS provides awareness and support to beekeepers to continuously protect and improve the Irish Amm population. For this purpose, NIBHS introduced the successful ‘Queen Rearing Group Scheme’ helping Irish beekeepers rear their own Amm queens. This is supported with practical days on bee improvement and queen rearing at local beekeeping associations. In parallel, NIHBS established ‘Conservation Areas’ (>360 areas) and a network of **Ammassadors**. NIHBS further produced a series of educational booklets, published a book ‘The Native Irish Honey Bee’, keeps members up-to-date through monthly e-Newsletters, ‘The Four Seasons’ quarterly magazine, annual conferences, and supports scientific studies related to Amm. A recent scientific paper confirmed that in Ireland there is a distinctly different gene pool of Amm, a unique ecotype, but which is threatened by increased hybridisation.

NIHBS wants legal protection of the Irish Amm. As a major step forward, ‘The Protection of the Native Irish Honey Bee Bill 2021’ a legal act, passed through the Seanad (the upper House) in October 2024. It still must get through the lower House, the Dáil. In October 2023 the Department of Agriculture, Food and the Marine, instigated a one- year comprehensive assessment on the threat to the Native Irish Honey Bee and the impact upon biodiversity and ecosystem from introgression/crossing/cross-breeding with non-native (sub)- species. NIHBS is looking forward to the results of this study and trusts the Department will take appropriate action to protect Ireland’s only native honey bee.

Bio: Frankie de Dobbelaere graduated in veterinary medicine at the University Ghent, Belgium, followed by a postgraduate study in hygiene of food of animal origin. Frankie has lived in Ireland for more than 26 years, where she works with the European Commission, and has enthusiastically kept bees since 2016. She is an education officer in her beekeepers’ association and is actively involved in providing lectures for those beginning to keep bees and in mentoring beekeepers. She is also a committee member of the Asian Hornet Group Ireland, drawing awareness to this potentially devastating invasive species.

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Beekeeping organisation: Native Irish Honey Bee Society (NIHBS)

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SICAMM
Delegate

Educator officer
on beekeeping,
engaged in Asian
Hornet Issues

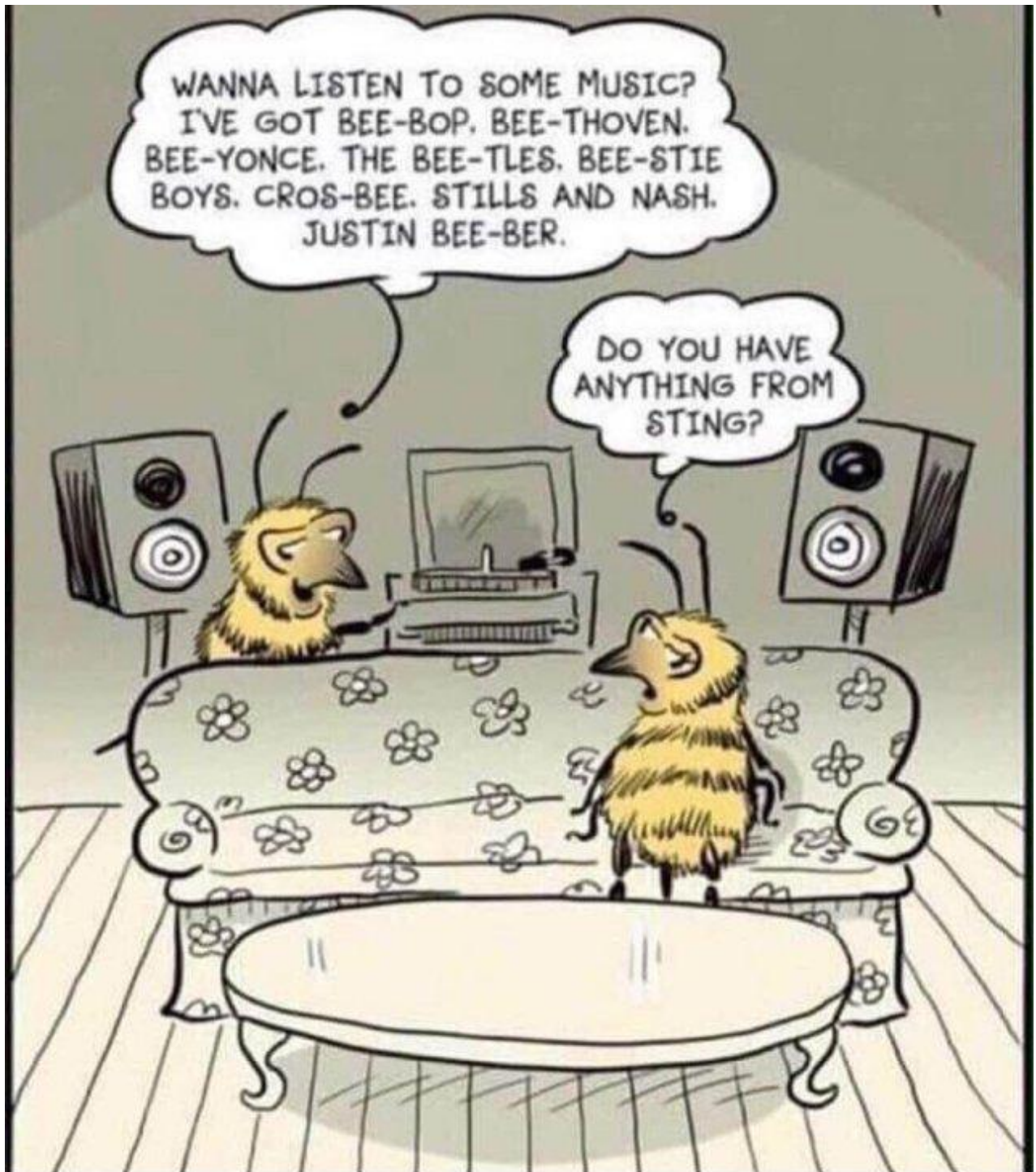


Image source: <https://badbeekeepingblog.com/beejokes/>