

Publications, Invited Lectures and Organized Workshops

Dr. Gabriele Berberich (gabriele.berberich@tu-dortmund.de); 12.10.2017

Preprints

Berberich G.M, A. M. Ellison, M. B. Berberich, A. Grumpe, A. Becker and C. Wöhler. 2017. Can a red wood ant nest be a trap for fault-related CH micro-seepage? A case study from continuous short-term in-situ sampling. BioRxiv. doi: <https://doi.org/10.1101/154245>

Berberich G.M, M. B. Berberich, A. M. Ellison. 2017. Fluctuations of gas concentrations in three mineral springs of the East Eifel Volcanic field (EEVF). arXiv. arXiv:1710.04128

Journal articles

Del Toro, I., G.M. Berberich, R. R. Ribbons, M. Berberich, N. J. Sanders, and A. M. Ellison. 2017. Nests of red wood ants (*Formica rufa*-group) are positively associated with tectonic faults: a double-blind test. PeerJ. DOI 10.7717/peerj.3903

Berberich G.M, Sattler T., Klimetzek D., Benk S.A., Berberich M.B., Polag D., Schöler H.F., Atlas E.: Halogenation processes linked to red wood ant nests (*Formica* spp.) and tectonics. J Atmos Chem., 2016, DOI 10.1007/s10874-016-9358-0

Berberich, G.M., Dormann, C.F., Klimetzek, D., Berberich, M.B., Sanders, N.J. & Ellison, A.M. 2016. Detection probabilities for sessile organisms. Ecosphere 7(11):e01546. 10.1002/ecs2.1546.

Berberich, G.M., Grumpe, A., Berberich, M.B., Klimetzek, D., Wöhler, Chr.: Are red wood ants (*Formica rufa*-group) tectonic indicators? A statistical approach. Ecological Indicators, 2016, pp. 968-979 DOI information: 10.1016/j.ecolind.2015.10.055.

Berberich, G.M., Klimetzek, D., Wöhler, Chr., Grumpe, A.: Statistical Correlation between Red Wood Ant Sites and Tectonically Active Fault Structures. Mitt. Dtsch. Ges. allg. angew. Ent. 19., 2014, p: 45-50.

Berberich, G.M. and Schreiber, U.: GeoBioScience: Red Wood Ants as Bioindicators for Active Tectonic Fault Systems in the West Eifel (Germany). Animals 2013, 3(2), 475-498; doi:10.3390/ani3020475

Berberich, G.M., Berberich, M.B., Grumpe, A., Wöhler, Chr., Schreiber, U.: Early Results of Three-Year Monitoring of Red Wood Ants' Behavioral Changes and Their Possible Correlation with Earthquake Events. Animals 2013, 3(1), 63-84; doi:10.3390/ani3010063

Berberich, G.M.: GeoBioScience: Rote Waldameisen (*Formica rufa*-Gruppe) als Bioindikatoren für tektonisch aktive Störungszonen. In Treffpunkt Biologische Vielfalt XII—Interdisziplinärer Forschungsaustausch im Rahmen des Übereinkommens über die biologische Vielfalt, 1st ed.; Korn, H., Feit, U., Eds.; Bundesamt für Naturschutz, BfN-Skriptenreihe 335: Bonn, Germany, 2013, pp. 155–161.

Berberich, G.M.: Identifikation rezenter gasführender Störungszonen in der West- und Hocheifel mithilfe von Bioindikatoren. Dissertation, 2010. Universität Duisburg Essen. 289 Seiten.

Conference proceedings

CEWM 2017

Berberich G.M., Berberich M.B., Grumpe A., Becker A., Hartmann J., Wöhler Chr., Ellison A.M. (2017): A multidisciplinary approach to understanding interactions between red wood ants (*Formica rufa*-group) and geotectonic processes. 7th CEWM - Central European Workshop of Myrmecology, 22-24. April 2017, Krakow, Poland. Talk.

Klimetzek, D., Berberich, G.M., Paraschiv, M. and Stancioiu, P.T. (2017): Red wood ants (RWA, *Formica rufa* - group) and tectonics in the East Carpathians (Romania). 7th CEWM - Central European Workshop of Myrmecology, 22-24. April 2017, Krakow, Poland. Talk.

AGU 2016

G. M. Berberich, M. B. Berberich, A. Grumpe, A. Becker, A. Román Tejeda, H. Simpson, S. Obamwonyi, M. Schumann, J. Hartmann, C. Wöhler and A. M. Ellison: A multidisciplinary approach to understand interactions of red wood ants (*Formica rufa*-group). AGU Fall Meeting, December 12-16, San Francisco, USA. Poster.

ICE 2016

G. M. Berberich, A. M. Ellison & C. Wöhler: Red wood ants (*Formica rufa*-group) and tectonic processes interact and contribute to climatic change. 2016 XXV International Congress of Entomology, September 25-30, Orlando, USA. Virtual Poster.

Goldschmidt 2015

G. M. Berberich, A. Grumpe, M. B. Berberich, D. Klimetzek and C. Wöhler: Red wood ants as geochemical and tectonic indicators. Goldschmidt 2015, 25th Anniversary, 16. - 21. August 2015, Prague. Poster.

ECE2014

G.M. Berberich, T. Sattler, D. Klimetzek, S. Benk, H.F. Schöler, E. Atlas: Organohalogens in nest gas of a *Formica rufa* supercolony. Xth European Congress of Entomology – ECE2014 – 3.8 – 8.8.2014 York. Talk.

G.M. Berberich, A. Grumpe, M. Berberich, D. Klimetzek, C. Wöhler: Statistical correlation of ant mounds (*Formica* spp.) and gas-permeable fault structures in the West Eifel and the Freiburg-Bonndorfer-Grabenzone. Xth European Congress of Entomology – ECE2014 – 3.8 – 8.8.2014 York. Poster

CEWM2013

G.M. Berberich, M. Berberich, D. Klimetzek, Chr. Wöhler, A. Grumpe: Statistical correlation between red wood ant mounds (*Formica* spp.) and active fault structures in the West Eifel and the Freiburg - Bonndorfer - Grabenzone. 5 CEWM - Central European Workshop of Myrmecology, 5-8. September 2013, Innsbruck. Talk.

Basalt 2013

U. Schreiber & G.M. Berberich: New Findings on Gas Migration and Active Tectonics in the East Eifel Volcanic Field. Basalt 2013 - Cenozoic Magmatism of Central Europe. Görlitz 24.-28.04.2013. Talk.

EGU 2013

G.M. Berberich, M. Berberich, A. Grumpe, Chr. Wöhler, U. Schreiber: First Results of 3 Year Monitoring of Red Wood Ants' Behavioural Changes and Their Possible Correlation with Earthquake Events. Geophysical Research Abstracts. Vol. 15, EGU2013-24, 2013. Talk.

U. Schreiber & G.M. Berberich: Why does the Size of the Laacher See Magma Chamber and its Caldera Size not go together? – New Findings with regard to Active Tectonics in the East Eifel Volcanic Field. Vol. 15, EGU2013-5908, 2013. Poster.

Conference proceedings

DGaaE 2013 - Entomologentagung Göttingen

Berberich G., Klimetzek D., Wöhler Chrhr., Grumpe A. (2013): Statistical Correlation between Red Wood Ant Sites and Tectonically Active Fault Structures. DGaaE – Entomologentagung Göttingen, 18.03 - 21.03.2013, Talk.

Entomology 2012 (Entomological Society of America)

Berberich G., Klimetzek D., Berberich M., Schreiber U. (2012): A red wood ant supercolony as a bioindicator for neotectonic fault structures at the peninsula Bodanrueck (southwest Germany). Entomology 2012, ESA's 60th Annual Meeting, November 11-14, 2012, Knoxville, TN. Paper 65819. Talk.

Klimetzek D., Berberich G., Berberich M., Schreiber U. (2012): Wood ants prefer neotectonic faults: 50 years of a *Formica rufa* – supercolony in southwest Germany. Entomology 2012, ESA's 60th Annual Meeting, November 11-14, 2012, Knoxville, TN. Paper 65821. Talk.

GDNÄ 2012

Berberich G., Klimetzek D., Berberich M. und Schreiber U. (2012): GeoBioScience: Rote Waldameisen und geogene Gase als Indikatoren für aktive Tektonik auf dem Bodanrück (Bodensee). 127. Versammlung der GDNÄ, 14. bis 18. September 2012, Göttingen. Poster.

BFN-Vilm 2012

Berberich G. (2012): GeoBioScience: Rote Waldameisen (*Formica rufa*-Gruppe) als Bioindikatoren für tektonisch aktive Störungszonen. Interdisziplinäre Expertentagung im Rahmen des Übereinkommens über die biologische Vielfalt am Bundesamt für Naturschutz (BfN) Internationale Naturschutzakademie Insel Vilm (INA). 20. bis 24. August 2012. Talk.

EGU 2012

Berberich G., Klimetzek D., Schreiber U., and Berberich M. (2012): Geogenic Gases and Red Wood Ant Clusters as Indicators for Neotectonic Activity at the Peninsula Bodanrück (South West Germany). Geophysical Research Abstracts. Vol. 14, EGU2012-3488, 2012. EGU General Assembly 2012, Vienna.

Berberich G., Klimetzek D., Wöhler Chr., and Grumpe A. (2012): Statistical Correlation between Red Wood Ant Sites and Neotectonic Strike-Slip Faults. Geophysical Research Abstracts. Vol. 14, EGU2012-3518, 2012. EGU General Assembly 2012, Vienna. Poster.

Fragile Earth 2011

Berberich G. & Schreiber U. (2011): Bio-Geosciences: Red Wood Ant Mounds are Biological Indicators for Neotectonic Earthquake-bearing Fault Systems. Paper No. 33-3. Fragile Earth: Geological Processes from Global to Local Scales and Associated Hazards. International Conference, Munich, 4-7 September 2011. Talk.

EGU 2011

Schreiber U. & Berberich G. (2011): Red Wood Ant Mounds as Biological Indicators for Earthquake-bearing Fault Systems. Geophysical Research Abstracts, Vol. 13, EGU2011-1790, 2011, EGU General Assembly 2011, Vienna. Talk.

Berberich G., Berberich M., Schreiber U. (2011): First Results of 1 Year Monitoring of Red Wood Ant Behaviour as Short-term (> 1h) Indicators for Earthquake Prediction. Geophysical Research Abstracts. Vol. 13, EGU2011-1785, 2011, EGU General Assembly 2011, Vienna. Talk.

GV 2009

Berberich, G. & Schreiber, U. (2009): Detection of Gas permeable Strike-Slip Faults by means of Bioindicators (Hill-building Forest Ants) and Gas Analyses in the Volcanic West- and Hocheifel (Germany). GV Annual Meeting 2009, Göttingen 5-7 October 2009, Earth Control on Planetary Life and Environment, p. 16. Poster.

Conference proceedings**WINRE '94**

Berberich, G., Bertges, W. D., Fehlau, K. P.: The Information System ISAL of the State North Rhine Westphalia, WINRE '94, 5th Workshop on Information Management in Nuclear Safety, Radiation Protection, and Environmental Protection. GRS-115. Cologne, 11 – 13 October, 1994, p. 147 – 156. Talk.

KfK/TNO 1993

Berberich, G., Dreschmann, P., Heuel, B., Steffens, K., Shearer, T. (1993): Additional Monitoring Measures using U.S. Standards for the Remediation Site Haynauer Str. 58, Berlin, within the Framework of the Bilateral German-American Agreement. Fourth International KfK/TNO-Conference in Contaminated Soil, Berlin 3-7 May 1993.

Steffens, K., Scola, L., dePercin, P., Johnson, M., Berberich, G., Heuel, B. (1993): Prozessüberwachung einer Anlage zur thermischen Desorption von PCB aus Böden – Planung und Qualitätssicherung. Altlastensanierung '93. Vierter Internationaler TNO/BMFT-Kongreß über Altlastensanierung (zugleich BMFT-Statusseminar) , 3. – 7. Mai 1993, Berlin Deutschland, Band 1, S. 833 – 842.

Berberich, G., Argus, R., Steffens, K., Lewis, R. (1993): Geplante zusätzliche Qualitätsmaßnahmen basierend auf U.S. Standards für den Standort Haynauer Straße 58, Berlin im Rahmen der deutsch-amerikanischen Zusammenarbeit. Altlastensanierung '93. Vierter Internationaler TNO/BMFT-Kongreß über Altlastensanierung (zugleich BMFT-Statusseminar), 3. – 7. Mai 1993, Berlin Deutschland, Band 1, S. 795 – 802.

4th Forum on Innovative Hazardous Waste Treatment Technologies 1992

Stietzel, H., Sanning, D., Berberich, G., Steffens, K. (1992): United States/German Bilateral Agreement on Hazardous Waste Site Clean-up Projects. Fourth Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International, San Francisco, California, USA, November 17 – 19, 1992.

NATO/CCMS 1992

Berberich, G., Steffens, K., Sanning, D., Stietzel, H. J. (1992): United States – German Bilateral Agreement on Abandoned Site Clean-up Projects. NATO/CCMS Pilot Study “Demonstration of Remedial Action technologies for Contaminated Land and Groundwater”. Budapest, 18 – 22 October, 1992.

NATO/CCMS 1991

Stietzel, H. J., Sanning, D., Steffens, K., Berberich, G. (1991): United States – German Bilateral Agreement on Abandoned Site Clean-up Projects. NATO/CCMS Pilot Study “Demonstration of Remedial Action Technologies for Contaminated Land and Groundwater”. Washington, 18 – 22 November, 1991.

Books & Brochures

Berberich, G.: Megastädte – die Welt von morgen nachhaltig gestalten. Megacities – Shaping of a Sustainable Future World. Bundesministerium für Bildung und Forschung (BMBF), Referat 723 – Globaler Wandel, 2010, Bonn (Hrsg.). p. 84.

Bantz, I., Beier, J., Berberich, G., Ferner, K., Görtz, W., Hüsgen, R., Keller, U., Köhne, J., Korn, E., Kulik, Chr., Schellartz, G., Schillies, K., Valentin, I.: Bericht zur Altlastensituation in Düsseldorf. Stand 1998. Landeshauptstadt Düsseldorf – Der Oberstadtdirektor - Umweltamt (Hrsg.), Juni 1998.

Berberich, G.: Erfassung und Bewertung bergbaulicher Umweltradioaktivität. Messprogramme und radiologische Klassifikation. Bundesamt für Strahlenschutz (BfS), Salzgitter (Hrsg.), März, 1997.

Bantz, I., Beier, J., Schellartz, G., Berberich, G., Görtz, W., Köhne, J., Meier, P., Möls, B., Ritter, S., Stolz, E., Stürmer, H., Valentin, I., Wiese, M.: Bericht zum Grundwasserschutz in Düsseldorf. Stand 1995. Landeshauptstadt Düsseldorf – Der Oberstadtdirektor - Umweltamt (Hrsg.), Juni 1995.

Bettmann, Berberich, Bertges, Breitenborn, Delschen, Diederichs, Fehlau, Grubert, Hagel, Heleine, Koch, Lütte, Rademacher, Rennebaum-Schulte, Schellartz, Willershausen: Anforderungen an Gutachter, Untersuchungsstellen und Gutachten bei der Altlastenbearbeitung. Materialien zur Ermittlung und Sanierung von Altlasten. Band 11, Ministerium für Umwelt, Raumordnung und Landwirtschaft des Landes Nordrhein-Westfalen, Essen, Mai 1995.

Berberich, G.: Erfassung und Bewertung bergbaubedingter Umweltradioaktivität. Altlastenverifikation. Überprüfung und Kontrollmessungen der bergbaubedingten radiologischen Umweltauswirkungen. Bundesamt für Strahlenschutz (BfS), Salzgitter (Hrsg.), April 1994.

Berberich, G., Argus, R., Steffens, K., Lewis, R. (1993): Evaluation of Treatment Technologies using U.S. Methods for the Remediation Site Haynauer Str. 58, Berlin within the Framework of the Bilateral German-American Agreement. F. Arendt, G.J. Annokké, R. Bosman and W.J. van den Brink (eds.), Contaminated Soil '93, 799-805, 1993 Kluwer Academic Publishers.

Berberich, G., Argus, R., Steffens, K., Lewis, R.: Geplante zusätzliche Qualitätsmaßnahmen basierend auf U.S. Standards für den Standort Haynauer Straße 58, Berlin im Rahmen der deutsch-amerikanischen Zusammenarbeit. F. Arendt, G.J. Annokké, R. Bosman and W.J. van den Brink (eds.), Contaminated Soil '93, 795-802, 1993 Kluwer Academic Publishers.

Geller, Brauch, Werner, Berberich 1991: Handbuch Mikrobiologische Bodenreinigung. Materialien zur Altlastenbearbeitung, Band 7, Landesanstalt für Umweltschutz, Baden-Württemberg, Karlsruhe, 1991.

Invited Lectures

21.01.2017 - Kobern-Gondorf

Goloring-Ameisen & Sauerbrunnen im Visier der Wissenschaft. Erste Ergebnisse des Forschungsprojektes "GeoBio-Interactions". Kuratoriums f. Heimatforschung u. -pflege, Kobern-Gondorf

07.04.2016 – Ameisenschutzwarte Bayern, Falkenberg

GeoBio-Interactions: Vorläufige Ergebnisse der Kartierung in Münchsgrün. Jahreshauptversammlung Ameisenschutzwarte Bayern.

19.09.2015 - HeartMath Research Center, Boulder Creek, CA

The Ants - A geologist's view. HeartMath Research Center, Boulder Creek, California

07.07.2015 – MPI for Ornithology, Radolfzell

The Ants - A geologist's view. Max Planck Institute for Ornithology, Radolfzell

27.03.2015 – Ameisenschutzwarte Bayern, Falkenberg

GeoBioScience: Sind Waldameisen die besseren Geologen? Jahreshauptversammlung Ameisenschutzwarte Bayern.

12.02.2014 - Biologische Station Krickenbecker Seen

GeoBioScience: Sind Waldameisen die besseren Geologen?

03.08.2013 - Ameisenschutzwarte NRW, Leverkusen

GeoBioScience: Rote Waldameisen (*Formica rufa* - Gruppe) als Bioindikatoren tektonisch aktiver Störungssysteme

28.06.2013 - Naturzentrum Haus Ternell/CRIE, Belgien

GeoBioScience: Rote Waldameisen als Bioindikatoren für tektonisch aktive Störungszonen.

29.01.2013 - Naturwissenschaftlicher Verein Wuppertal e.V.

GeoBioScience: Rote Waldameisen (*Formica rufa* - Gruppe) als Bioindikatoren tektonisch aktiver Störungssysteme.

01.06.2012 – Konrad-Adenauer-Stiftung e.V. - Bildungszentrum Schloss Eichholz, Wesseling

GeoBioScience: Red Wood Ants a biological "early warning system" for earthquakes and volcanic eruptions? Lecture in the context of the in-depth seminar 06/2012 within the framework of the scholarships to students and graduates of exceptional academic achievement: Verändern Naturkatastrophen das Fortschrittsverständnis? Gesellschaftliche Grenzerfahrungen nach Fukushima.

16.08.2011 - R+V Rückversicherung, Wiesbaden

GeoBioScience: Können Rote Waldameisen Erdbeben "vorhersagen"?

31.05.2011- GFZ German Research Centre for Geosciences, Potsdam

Monitoring of Red Wood Ant Behaviour on Top of Neotectonic Fault Systems: First Results. Birdtrack Workshop, 2011

23.05.2011- Summer term 2011- University of Heidelberg

GeoBioScience: Are Red Wood Ants able "to forecast" earthquakes? University Heidelberg. Lecture in the context of: Occupational areas in geosciences.

Invited Lectures**05.05.2011 - Museum of natural history Gerolstein**

Are Red Wood Ants able "to forecast" earthquakes? Lecture in the context of UN Campaign "International Year of Forests 2011". Museum of natural history Gerolstein. Promotors: Forest Districts Rheinland-Pfalz-Saarland e.V. 2011

10.01.2011 – Weibern

Geology meets Biology: Are Red Wood Ants able "to forecast" earthquakes? 1 Interdisciplinary Workshop on Red Wood Ants-Neotectonic-Earthquakes. Weibern, 2011

30.09.2010 – Optronik, Systemtechnik und Bildauswertung (Fh G IOSB), Ettlingen

Identification of active gas permeable fault zones by means of bioindicators in the West Eifel (Germany). Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung (Fh G IOSB), Ettlingen, 2010

22.06.2010 – Goloring, Kobern-Gondorf

Identification of active gas permeable fault zones by means of bioindicators in the West Eifel (Germany). Interdisciplinary Workshop on Research of the Goloring. Kobern, 2010

20.08.2009 - Energy Agency NRW, Gelsenkirchen

Identifikation junger gasführender Störungzonen in der Westeifel. Energy Agency Northrhine-Westphalia, Gelsenkirchen, 2009

12.10.1994 - GRS, Cologne

The Information System ISAL of the State North Rhine Westphalia, WINRE '94, 5th Workshop on Information Management in Nuclear Safety, Radiation Protection, and Environmental Protection. GRS, Cologne, 11 – 13 October, 1994

Organized and Co-organized Conferences and Workshops

18. – 20.11.2015: Guest Lecture, UDE

Guest Lecture and hand-on Workshop "Ecological applications of spatial statistics – the case of red wood ants" by Prof. Dr. Aaron Ellison (Harvard University). Organized and promoted by G. Berberich (UDE)

17.11.2015: Erftstadt

3rd Workshop-Meeting on Red Wood Ants & Statistics, Erftstadt. Participants: Prof. Aaron M. Ellison (Senior Research Fellow in Ecology and Professor in the departments of Biology and Environmental Conservation; Harvard University), Prof. Nathan Sanders (University of Copenhagen) and Prof. Carsten Dormann and Prof. D. Klimetzek (University of Freiburg)

19.05. – 22.05.2015: Freiburg

2 Workshop on Red Wood Ants & Statistics, Freiburg together with Prof. Aaron M. Ellison (Senior Research Fellow in Ecology and Professor in the departments of Biology and Environmental Conservation; Harvard University), Prof. Nathan Sanders (University of Copenhagen) and Israel del Toro (University of Copenhagen) Convener: G.M. Berberich (UDE) & D. Klimetzek (University of Freiburg)

02.05. – 08.05.2014: Freiburg/Essen

1 Workshop on Red Wood Ants, Tectonics, Geogenic Gases & Statistics, Freiburg & Essen on the occasion of the visit of Prof. Aaron M. Ellison (Senior Research Fellow in Ecology and Professor in the departments of Biology and Environmental Conservation; Harvard University) Convener: G.M. Berberich (UDE) & D. Klimetzek (University of Freiburg)

27.04. – 02.05.2014: EGU2014

SM3.2/NH4.4 Earthquakes Short-term Prediction and time-Dependent Assessment of Seismic Hazard (t-DASH) (co-organized) Convener: V. Tramutoli; Co-Conveners: P.-F. Biagi, G. Papadopoulos, G.M. Berberich, F. Freund, J. Y. Liu, D. Ouzounov, S. Pulinets, M. Hayakawa, V. Kossobokov, M. Parrot, G. Martinelli

07.04. – 12.04.2013: EGU2013

SM3.2 Earthquake precursors, bioanomalies prior to earthquakes and prediction. Conveners: V. Straser, G.M. Berberich | Co-Conveners: F. Freund, R. Grant, V. Stolc
PSD11.1: SM3.2 - Earthquake precursors, bioanomalies prior to earthquakes and prediction. Conveners: V. Straser, G.M. Berberich | Co-Conveners: F. Freund, R. Grant, V. Stolc

22.04. – 27.04.2012: EGU2012

HS10.5/BG2.21 Geological and hydro-biochemical feedbacks shaping habitats and biodiversity in terrestrial systems. Convener: D. Or, G.M. Berberich, A. Hildebrandt, K. Caylor, U.A. Glasmacher
BG1.5 Biological Indicators as an Additional Tool for Understanding geological Processes. Convener: G.M. Berberich, U.A. Glasmacher

10.01.2011: Weibern

1st Interdisciplinary Workshop on Red Wood Ants-Neotectonic-Earthquakes, Weibern, 2011

20.08.2010 – Goloring, Kobern-Gondorf

Interdisciplinary Workshop on Research of the Goloring, Kobern 2010

Grants & Scholarships

GeoBio-Interactions: Contributions to climatic change of the relations between activities of red wood ants (*Formica rufa*-group) and tectonic processes. 1.5 years. 2016-2017. VW-Stiftung. Az 93 303. 98.200 €

Travelling scholarship of the Wilhelm und Else Heraeus-Stiftung (127. Conference of GDNÄ, 14. bis 18. September 2012, Göttingen)