

Matthias Baumann

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RESEARCH INTERESTS Land-system science, remote sensing, GIS, conservation, coupled human and natural systems

PROFESSIONAL EXPERIENCE	Senior Scientist, Geography Department, Humboldt-University Berlin	Since 2018
	Postdoctoral Researcher, Geography Department, Humboldt-University Berlin	2014-2018
	Research Assistant, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison.	2009-2013
	Undergraduate Research Assistant, Geography Department, Humboldt-University Berlin	2007-2009
	Freelancer at RSS Remote Sensing Solutions GmbH, Potsdam, Germany	2008, 2009
	Internship at RSS Remote Sensing Solutions GmbH, Potsdam, Germany	2008
	Internship at the Ministry of Health, Environment and Consumer Protection of Berlin, Germany	2008

EDUCATION	Doctoral Studies (PhD) in Forestry, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison, USA. <i>Thesis: Forests through the eye of a satellite. Understanding regional forest dynamics using Landsat satellites.</i>	2009-2013
	Diploma studies (MSc equivalent) in Geography, Meteorology and Geomatics, Geography Department, Humboldt University Berlin, Germany <i>Thesis: Determinants of post-socialist farmland abandonment in the Ukrainian Carpathians.</i>	2003 -2009
	Visiting scholar at the Department of Forest and Wildlife Ecology, University of Wisconsin-Madison, USA.	2009

Visiting student at the Geography Department, University of Seville, Spain	2005-2006
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TRAININGS

2-day Training on “Communicating with Media”, organized by the NaWik	2018
2-day workshop in teaching methods	2018
2-day workshop on: “Better presence during teaching using the voice”	2018
2-day training “Verständlich schreiben”, organized by the NaWik	2021
2-day workshop on “Diversity in academic teaching”	2021

AWARDS AND FELLOWSHIPS

Best Poster Presentation Award, Global Land Program (GLP) Open Science Meeting 2016	2016
DAAD (German Academic Exchange Service) Conference Travel Grant to attend a conference	2016
DAAD (German Academic Exchange Service) return fellowship for German researchers in foreign countries	2014
Young Researcher Grant, IAMO-Forum 2012	2012
Vilas Travel Grant	2012
International Office of Humboldt-University Berlin, Travel grant for a research visit at the University of Wisconsin-Madison	2009
ERASMUS/Sokrates Scholarship for undergraduate studies at the University of Seville, Spain	2005 -2006

RESEARCH GRANTS

Baumann, M., Ghoddousi, A. (PIs). "Vanishing Treasures- Climate resilient mountain ecosystems for resilient livelihoods and key flagship mountain species in Central Asia". <i>United Nations Environmental Program</i> (€ 135,000)	2020-2022
Radeloff, V.C. (PI) Land use change in the Caucasus Mountains and the role of ethnic differences, national	2014-2017

policies, and armed conflicts. CO-Investigator *NASA Land Use Land Cover Change Program* (US-\$ 829,000)

TEACHING

WiSe – Wintersemester (winter term)

SoSe – Sommersemester (summer term)

“Research Colloquium of the Earth Observation Lab and the Conservation Biogeography Lab” and “Student Colloquium of the Earth Observation Lab and Conservation Biogeography Lab”, together with Prof. Hostert, Drs. Ruffin, Bleyhl, Pflugmacher.	SoSe 2020
“Ecosystem Dynamics and Global Change” full module (10 ECTS), taught together with Prof. Jähnig, Dr. Baum, MSc Pötzschner	SoSe 2020
“Statistical data manipulation with R” full seminar, closely connected to the lecture “Introduction to Statistics” by Prof. Krüger (2 groups, 2 SWS each)	WiSe 2018/2019 2019/2020 2020/2021 2021/2022
“Geoprocessing in python” full module (10 ECTS) (together with Dr. Pflugmacher)	SoSe 2019 WiSe 2019/2020
“Geoprocessing in python” full module (10 ECTS) (taught alone)	SoSe 2018
“Global Land Use Dynamics” full module (10 ECTS), taught together with Profs. Kuemmerle and Hostert, and Dr. Mueller	WiSe 2016/2017 2017/2018 2018/2019 2019/2020 2020/2021 2021/2022
“556 Digital Image Processing”; various lectures and labs for Prof. Mutlu Ozdogan (@ UW-Madison)	Spring 2012, 2013
“441 Environmental Remote Sensing”; various lectures and labs for Prof. Annemarie Schneider (@ UW-Madison)	Fall 2011, 2012

PUBLICATIONS (PEER-REVIEWED)

56 total plus 10 submitted or in review

* indicates a MSc student I supervised

Baumann, M., Gasparri, N.I., Buchadas, A., Oeser, J., Meyfroidt, P., 66
Levers, C., Romero-Muñoz, A., le Polain de Waroux, Y., Müller, D.,

-
- Kuemmerle, T. Frontier metrics for a process-based understanding of deforestation dynamics. *In review*
- Jakimow, B., **Baumann, M.**, do Nascimento Bendini, H., Hostert, P. 65
Deforestation and agricultural fires under current political changes in South-West Pará, Brazil. *submitted*
- Friis, C., **Baumann, M.**, Coral, C., Frommen, T., Ghoddousi, A., Loibl, D., Rufin, P., Hernández-Morcillo, M. Bridging scales: Scanning solutions in interdisciplinary human-environment research. *In review* 64
- Pendrill, F., Gardner, T.A., Meyfroidt, P., Person, U.M., Azevedo, T., Bastos Lima, M.G., **Baumann, M.**, Curtis, P.G., De Sy, V., Garrett, R., Godar, J., Dow Goldman, E., Hansen, M.C., Heilmayr, R., Herold, M., Kuemmerle, T., Lathuillière, M.J., Ribeiro, V., Tyukavina, A., Weisse, M.J., West, C. Demystifying the numbers behind agriculture-driven tropical deforestation. *In review* 63
- Buchner, J., Butsic, V., Yin, H., Kuemmerle, T., **Baumann, M.**, Zazanashvili, N., Stapp, J., Radeloff, V.C. Localized versus wide-ranging effects of the four post-Soviet wars in the Caucasus on agricultural abandonment. *In review* 62
- Buchadas, A., **Baumann, M.**, Meyfroidt, P., Kuemmerle, T. (2021). 61
Uncovering major types of deforestation frontiers across the world's tropical dry forests. *In review*
- Eklund, L., Theisen, O.M., **Baumann, M.**, Tollefsen, A.F., Kuemmerle, T., Østergaard Nielsen, J. Drought, crop failure and recovery in pre-conflict Syria: deconstructing the prevailing drought-conflict narrative. *In review* 60
- Thonicke, K., Langerwisch, F., **Baumann, M.**, Leitão, P.J., Václavík, T., Alencar, A., Simões, M., Scheiter, S., Langan, L., Bustamante, M., Gasparri, N.I., Hirota, M., Börner, J., Rajao, R., Soares-Filho, B., Yanosky, A., Ochoa-Quinteiro, J.M., Seghezzo, L., Conti, G., de la Vega-Leinert, A.C., A social-ecological approach to identify and quantify biodiversity tipping points in South America's seasonal dry ecosystems. *In review* 59
- Burnham, J.W., Wu, H., Qiang, L., **Baumann, M.**, Radeloff, V.C., 58
Barzen, J., Yang, X., Yesou, H., Pidgeon, A.M. Using multi-sensor data to identify wintering 1 habitat of Black-necked Cranes (*Grus nigricollis*) at China's Napahai Wetland and map habitat change from 1990 to 2009. *In review*
- Stirnemann, I., Hoelzl, N., Urazaliev, R., **Baumann, M.**, Kuemmerle, T., Donald, P.F., Kamp, J. Past land-use and fire history affect occurrence and density of Eurasian steppe birds. *In review* 57

- Pöttschner, F.*, **Baumann, M.**, Gasparri, N.I., Loto, D., Conti, G., 56
Piquer-Rodriguez, M., Kuemmerle, T. (2021). Ecoregion-wide, multi-
sensor biomass mapping highlights a major underestimation of dry
forests carbon stocks. *Remote Sensing of Environment, accepted*
- Christiansen, R., **Baumann, M.**, Kuemmerle, T., Mahecha, M.D., 55
Peters, J. Towards causal inference in Spatial-Temporal data: Conflict
and Forest Loss in Colombia. *Journal of the American Statistical
Association, accepted*
- Levers, C., Romero-Muñoz, A., **Baumann, M.**, De Marzo, T., 54
Fernández, P., Gasparri, N.I., Gavier Pizarro, G., Le Polain de Varoux,
Y., Piquer-Rodriguez, M., Semper-Pascual, A., Kuemmerle, T.
Agricultural expansion and the ecological marginalization of forest-
dependent people. *Proceedings of the National Academy of Science,*
118(44)
- Kuemmerle, T., & **Baumann, M.** Shocks in food systems during times 53
of conflict. *Nature Food, accepted*
- Law, E., Macchi, L., **Baumann, M.**, Decarre, J., Gavier-Pizarro, G., 52
Levers, C., ... Kuemmerle, T. (2021). Fading opportunities for
mitigating agriculture-environment trade-offs in a South American
deforestation hotspot. *Biological Conservation, accepted*
- De Marzo, T., Pflugmacher, D., **Baumann, M.**, Lambin, E.F., Gasparri, 51
N.I., Kuemmerle, T. Characterizing forest disturbances across the
Argentine Dry Chaco based on Landsat time series. *Journal of Applied
Earth Observation and Geoinformation, 98, 102310*
- Semper-Pascual, A., Burton, C., **Baumann, M.**, Decarre, J., Gavier- 50
Pizarro, G., Gómez-Valencia, B., Macchi, L., Mastrangelo, M.,
Pöttschner, F., Zelaya, P., Kuemmerle, T. Habitat amount or habitat
fragmentation: what drives time-delayed responses of biodiversity to
land-use change? *Proceedings of the Royal Society B, 288 (1942),*
20202466
- Semper-Pascual, A., Decarre, J., **Baumann, M.**, Camino, M., Di 49
Blanco, Yamil, Gomez-Valencia, Bibiana, Kuemmerle, T., Direct and
indirect land-use change effects drive the geography of population
decline. *Biodiversity and Conservation, 29, 3669–3688*
- Barral, M.P., Villarino, S., Levers, C., **Baumann, M.**, Kuemmerle, T., 48
Mastrangelo, M. (2020). Strong changes in bundles of ecosystem
functions and services as a result of land-use change in the Argentine
Chaco. *Journal of Applied Ecology, 57(12), 2485-2498*

- Baumann, M.**, Kamp, J., Pötzschner, F., Bleyhl, B., Dara, A., Hankerson, B., Prishchepov, A.V., Schierhorn, F., Müller, D., Hölzel, N., Krämer, R., Urazaliyev, R., Kuemmerle, T. (2020). Declining human pressure and opportunities for rewilding in the steppes of Eurasia. *Diversity and Distributions*, 26(9), 1058-1070 47
- Romero-Muñoz, A., Benítez-López, A., Zurell, D., **Baumann, M.**, Camino, M., Decarre, J., Giordano, A.J., Gómez-Valencia, B., Levers, C., Noss, A.J., Quiroga, V., Thompson, J., Torres, R., Velilla, M., Weiler, A., Kuemmerle, T. (2020). Reconstructing 30 years of habitat destruction and hunting impacts on large mammals across the Chaco. *Ecography*, 43(7), 954-966 46
- Názaro, M.G., Dos Santos, D.A., Torres, R., **Baumann, M.**, Blendiger, P.G. (2020). Imprints of geography and land cover on bird diversity in the South American Gran Chaco. *Journal of Biogeography*, 47(7), 1439-1454 45
- Dara, A., **Baumann, M.**, Freitag, M., Nölzl, N., Hostert, P., Kamp, J., Müller, D., Prishchepov, A.V., Kuemmerle, T. (2020). Dense Landsat time series reveal post-Soviet changes in grazing pressure. *Remote Sensing of Environment*, *accepted* 44
- Fernández, P.D., Kuemmerle, T., **Baumann, M.**, Grau, H.R., Nasca, J.A., Radrizzani, A., Gasparri, N.I. (2020) Understanding the distribution of cattle production systems in the South American Chaco. *Journal of Land Use Science*, 15(1), 52-68 43
- Dara, A., **Baumann, M.**, Hostert, P., Kamp, J., Müller, D., Ullrich, B., Kuemmerle, T. (2020) Post-Soviet land-use change affected fire regimes in the Eurasian steppe belt. *Ecosystems*, 23, 943-956 42
- Armentas, D., Negret, P., Melgarejo, L.F., Lakes, T.M., Londono, M.C., García Marques, J., Krueger, T., **Baumann, M.**, Davalos, L.M (2019) Curb land grabbing to save the Amazon. *Nature Ecology and Evolution*, 3, 1497 41
- Semper-Pascual, A., Decarre, J., **Baumann, M.**, Busso, J.M., Camino, M., Gómez-Valencia, B., Kuemmerle, T. Biodiversity loss in deforestation frontiers: linking occupancy modelling and physiological stress indicators to understand local extinctions. *Biological Conservation*, 236, 281-288 40
- Yin, H., Butsic, V., Buchner, J., Kuemmerle, T., Prishchepov, A.V., **Baumann, M.**, Bragina, E.V., Sayadyan, H., Radeloff, V.C. (2019) Agricultural abandonment and recultivation during and after the Chechen Wars in the northern Caucasus. *Global Environmental Change*, 55, 149-159 39

- Macchi, L., **Baumann, M.**, Bluhm, H., Baker, M., Levers, C., Grau, H. 38
C., Kuemmerle, T. (2019) Thresholds in bird community
composition along gradients of woody vegetation in the South
American Dry Chaco. *Journal of Applied Ecology*, 56(3), 629-639
- Romero-Muñoz, A., Torres, R., Noss, A.J., Giordano, A.J., Quieroga, 37
V., Thompson, J.J., **Baumann, M.**, Altrichter, M., McBride Jr., R.,
Velilla, M., Arispe, R., Kuemmerle, T., (2019). Habitat loss and
overhunting synergistically drive the extirpation of jaguars from the
Gran Chaco. *Diversity and Distributions*, 25(2), 176-190
- Butsic, V., Carah, J., **Baumann, M.**, Connor, Stephans, Brenner, J.C. 36
(2018). The cannabis agriculture frontier: emergence, expansion, and
institutional development to mitigate environmental threats.
Environmental Research Letters, 13, 124017.
- Piquer-Rodriguez, M., **Baumann, M.**, Butsic, V., Gasparri, N.I., 35
Gavier-Pizarro, G., Volante, J.N., Müller, D., Kuemmerle, T. (2018).
The potential impact of economic policies on future land-use
conversions in Argentina. *Land Use Policy*, 79, 57-67
- Baumann, M.**, Levers, C., Macchi, L., Bluhm, H., Waske, B., Gasparri, 34
N.I., Kuemmerle, T. (2018). Mapping continuous fields of tree and
shrub cover across the Gran Chaco using Landsat 8 and Sentinel-1
data. *Remote Sensing of Environment*, 216, 201-211
- Estel, S., Mader, S., Levers, C., Verburg, P.H., **Baumann, M.** 33
Kuemmerle, T. (2018). Combining satellite data and agricultural
statistics to map grassland management intensity in Europe.
Environmental Research Letters, 13 074020
- Dara, A., **Baumann, M.**, Kuemmerle, T., Pflugmacher, D., Rabe, A., 32
Griffiths, P., Nölzel, N., Hostert, P. (2018) Mapping the timing of
cropland abandonment and recultivation in northern Kazakhstan
using annual Landsat time series. *Remote Sensing of Environment*, 213,
49-60
- Rufin, P., Levers, C., **Baumann, M.**, Jägermeyr, J., Krueger, T., 31
Kuemmerle, T., Hostert, P. (2018). Cropping intensity on the world's
reservoir-irrigated croplands is determined by dam and irrigation
system properties. *Global Environmental Change*, 50, 110-122
- Piquer-Rodriguez, M., Butsic, V., Gärtner, P., Macchi, L., **Baumann,** 30
M., Gavier Pizarro, G., Volante, N. J., Gasparri, N.I., Kuemmerle, T.
(2018). Drivers of agricultural land-use change in Argentina. *Applied
Geography*, 91, 111-122

- Semper-Pascual, A., Macchi, L., Sabatini, F.M., Decarre, J., **Baumann, M.**, Blendinger, P., Gomez-Valencia, B., Mastrangelo, M.M., Kuemmerle, T. (2018) Time-delayed responses to land-use changes reveal a window of opportunity for bird and mammal conservation in the Dry Chaco. *Journal of Applied Ecology*, 55(3), 1218-1229 29
- Le Polain de Varoux, Y., **Baumann, M.**, Gasparri, N.I., Gavier Pizarro, G., Godar, J., Kuemmerle, T., Mueller, R., Vazquez, F., Volante, J.N., Meyfroidt, P. (2017) Rents, actors, and the expansion of commodity frontiers in the Gran Chaco. *Annals of the Association of American Geographers*, 108, 204-225 28
- Butsic, V., Schwab, B., **Baumann, M.**, Brenner, J. Inside the Emerald Triangle: Modeling the placement and size of cannabis production in Humboldt County, CA USA (2017). *Ecological Economics*, 141, 70-80 27
- * Fehlenberg, V., **Baumann, M.**, Gasparri, N.I., Piquer-Rodriguez, M., Gavier Pizarro, G., Kuemmerle, T. (2017). The role of soybean production as an underlying driver of deforestation in the South American Chaco. *Global Environmental Change*, 45, 24-34 26
- Bleyhl, B., **Baumann, M.**, Griffiths, P., Heidelberg, A., Manvelyan, K., Radeloff, V.C., Zazanashvili, N., Kuemmerle, T. (2017). Assessing landscape connectivity for large mammals in the Caucasus using Landsat 8 seasonal image composites. *Remote Sensing of Environment*, 193, 193-203 25
- Marinero, S., Grau, H.C., Gasparri, N.I., Kuemmerle, T., **Baumann, M.** (2017). Differences in land-use efficiency across land tenure regimes in the Argentinian Dry Chaco. *Environmental Research Letters*, 12(4), 045003 24
- Butsic, V., Lewis, D.J., Radeloff, V.C., **Baumann, M.**, Kuemmerle, T. (2017). Quasi-experimental methods to gain stronger inferences using observational data: introduction for ecologists. *Basic and Applied Ecology*, 19, 1-10 23
- Baumann, M.**, Israel, C., Piquer-Rodriguez, M., Gavier-Pizarro, G., Volante, J.N., Kuemmerle, T. (2017). Deforestation and cattle expansion in the Paraguayan Chaco 1987-2012. *Regional Environmental Change*, 17(4), 1179-1191 22
- Baumann, M.**, Gasparri, N.I., Piquer-Rodriguez, M., Gavier-Pizarro, G., Griffiths, P., Hostert, P., Kuemmerle, T. (2017). Carbon Emissions from deforestation and agricultural intensification the Chaco. *Global Change Biology*, 23, 1902-1916 21
- Baumann, M.**, Ozdogan, M., Richardson, A.D., Radeloff, V.C. (2017). Green-leaf phenology from Landsat. *Journal of Applied Earth Observation and Geoinformation*, 54, 72-83 20

- Baumann, M.** & Kuemmerle, T. (2016) The impacts of warfare and armed conflict on land systems. *Journal of Land Use Science*, 11(6), 672-688 19
- Santos, M.J., **Baumann, M.**, Esgalhado, C. (2016). Drivers of productivity trends in cork oak woodlands over the last 15 years. *Remote Sensing*, 8 (6), 486 18
- Hamilton, C., **Baumann, M.**, Pidgeon, A.M., Helmers, D.P., Thogmartin, W.E., Heglund, P.J., Radeloff, V.C. (2016). Past and predicted future effects of housing growth on open space pathways and habitat connectivity around National Wildlife Refuges. *Landscape Ecology*, 31(9), 2175-2186 17
- Estel, S., Kuemmerle, T., Levers, C., **Baumann, M.**, Hostert, P. (2016) Mapping cropland-use intensity across Europe using MODIS-NDVI time series. *Environmental Research Letters*, 11, 024015 16
- Joshi, N., **Baumann, M.**, Ehammer, A., Fensholt, R., Grogan, K., Hostert, P., Rudbeck Jepsen, M., Kuemmerle, T., Meyfroidt, P., Mitchard, E., Reiche, J., Ryan, C.M., Waske, B. (2016). A Review of the Application of Optical and Radar Remote Sensing Data Fusion to Land Use Mapping and Monitoring. *Remote Sensing*, 8(1), 70 15
- Butsic, V., **Baumann, M.**, Shortland, A., Walker, S., Kuemmerle, T. (2015). Conservation and conflict in the Democratic Republic of Congo: the impacts of warfare, mining, and protected areas on deforestation. *Biological Conservation*, 191 266-273 14
- Bragina, E., Radeloff, V.C., **Baumann, M.**, Wendland, K., Kuemmerle, T., Pidgeon, A.M. (2015): Effectiveness of protected areas in the Western Caucasus before and after the transition to post-socialism. *Biological Conservation*, 184 456-464 13
- Baumann, M.**, Radeloff, V.C., Avedian, V., Kuemmerle, T. (2015): Local and displaced land-use change in the Caucasus during and after the Nagorno-Karabakh conflict. *Regional Environmental Change*, 15(8) 1703-1716 12
- Wendland, K.J., **Baumann, M.**, Lewis, D., Sieber, A., Radeloff, V.C (2015): Protected area effectiveness in European Russia during and after the collapse of the Soviet Union. *Land Economics*, 91(1) 149-168. 11
- Griffiths, P., Kuemmerle, T., **Baumann, M.**, Radeloff, V.C., Abrudan, I.V., Lieskovsky, L., Munteanu, C., Ostapovicz, K., Hostert, P (2014): Forest disturbances, forest recovery, and changes in forest types across the Carpathian ecoregion from 1985 to 2010 based on Landsat image composites. *Remote Sensing of Environment*, 151, 72-88. 10

- Baumann, M.**, Ozdogan, M., Wolter, P.T., Krylov, A., Vladimirova, N., Radeloff, V.C. (2014): Landsat Remote Sensing of Forest Windfall Disturbance. *Remote Sensing of Environment*, 143, 171-179. 9
- Alcantara, C., Kuemmerle, T., **Baumann, M.**, Bragina, E., Dubinin, M., Griffiths, P., Hostert, P., Knorn, J., Muller, D., Prishchepov, A.V., Schierhorn, F., Sieber, A., Radeloff, V.C. (2013): Mapping the extent of abandoned farmland using MODIS time series. *Environmental Research Letters* 8(3) 035035. 8
- Sieber, A., Kuemmerle, T., Prishchepov, A.V., Wendland, K.J., **Baumann, M.**, Radeloff, V.C., Baskin, L.M, Hostert, P. (2013): Landsat-based mapping of post-Soviet land-use change to assess the effectiveness of the Oksky and Mordovsky protected areas in European Russia. *Remote Sensing of Environment*, 133, 38-51. 7
- Prishchepov, A.V., Muller, D., Dubinin, M., **Baumann, M.**, Radeloff, V.C. (2013): Determinants of agricultural land abandonment in post-Soviet European Russia. *Land Use Policy*, 30, 873-884. 6
- Prishchepov, A.V., Radeloff, V.C., **Baumann, M.**, Kuemmerle, T., Muller, D. (2012): Effects of institutional changes on land use: agricultural land abandonment during the transition from state-command to market-driven economies in post-Soviet Eastern Europe. *Environmental Research Letters*, 7(2), 024021 (13pp). 5
- Also available in Russian:
- Prishchepov, A.V., Radeloff, V.C., **Baumann, M.**, Kuemmerle, T., Muller, D. (2012): Impact of institutional and socio-economic changes after the collapse of the USSR on agricultural land use in Eastern Europe. *Earth from Space – The Most Effective Solutions*, 14, 7-14
- Baumann, M.**, Ozdogan, M., Kuemmerle, T., Wendland, K.J., Esipova, E., Radeloff, V.C. (2012): Using the Landsat record to detect forest-cover changes during and after the collapse of the Soviet Union in the temperate zone of European Russia. *Remote Sensing of Environment*, 124, 174-184. 4
- Wendland, K., Lewis, D., Alix-Garcia, J., Ozdogan, M., **Baumann, M.**, Radeloff, V.C. (2011): Regional- and district-level drivers of timber harvesting in European Russia after the collapse of the Soviet Union. *Global Environmental Change*, 21(4), 1290-1300. 3
- Baumann, M.**, Kuemmerle, T., Elbakidze, M., Ozdogan, M., Radeloff, V.C., Keuler, N.S., Prishchepov, A.V., Kruhlov, I., Hostert, P. (2011): Patterns and drivers of post-socialist farmland abandonment in Western Ukraine. *Land Use Policy*, 28, 552-562. 2
- Kuemmerle, T., Olofsson, P., Chaskovskyy, O., **Baumann, M.**, Ostapowicz, K., Woodcock C., Houghton, R. A., Hostert, P., Keeton, 1

W. S., and Radeloff, V.C. (2011): Post-Soviet farmland abandonment, forest recovery, and carbon sequestration in western Ukraine. *Global Change Biology*, 17, 1335-1349.

BOOK CHAPTERS

Fernández, P.D., **Baumann, M.**, Baldi, G., Banegas, N.R., Bravo, S., Gasparri, N.I., Lucherini, M., Marinaro, S., Nanni, S.A., Nasca, J.A., Torcuato, T., & Grau, H.R. (2020). Grasslands and Open Savannas of the Dry Chaco. In: Elias, S. & Alderton, D. *Encyclopedia of the World's Biomes. Elsevier, 15pp.* 4

Müller, D., Haberl, H., Bartels, L., **Baumann, M.**, Beckert, M., Levers, C., Schierhorn, F., Zscheischler, J., Havlik, P., Hostert, P., Mertz, O., Smith, P. (2016). Competition for land-based ecosystem services: Trade-offs and synergies. In: Niewöhner, J. et al. *Land Use Competition. Springer Verlag, Berlin.* pp. 127-147 3

Baumann, M., Piquer-Rodriguez, M., Fehlenberg, V., Gavier-Pizarro, G., Kuemmerle, T. (2016). Land-use competition in the South American Chaco. In: Niewöhner, J. et al. *Land Use Competition. Springer Verlag, Berlin.* pp. 215-229 2

Prishchepov, A.V., Müller, D., **Baumann, M.**, Kuemmerle, T., Alcantara, C., Radeloff, V.C. (2014). Underlying drivers and spatial determinants of post-Soviet agricultural land abandonment in temperate Eastern Europe. In: Gutman, G. & Radeloff, V.C. (editors): *Land-cover and land-use change in Eastern Europe 1990-2010: Impacts of the breakup of the Soviet Union. Springer Verlag, in press* 1

OTHER PUBLICATIONS

Baumann, M., Lentschke, J., Munack, H. & Schröder, H. (2009): Landscape ecology of the Tien Shan Mountains (Zailijskij Alatau, Tian Shan, Kasachstan). *Arbeitsmethoden der Physischen Geographie. Arbeitsband: Methoden und Ergebnisse. Reihe: Arbeitsberichte des Geographischen Institutes der Humboldt-Universität zu Berlin, 150.* 2

German Title: Landschaftsökologie des Hochgebirges (Zailijskij Alatau, Tian Shan, Kasachstan). [1](#)

Hostert, P., Kuemmerle, T., **Baumann, M.** (2010): Patterns and outcomes of post-socialist land-use change in the Carpathian Mountains. MRI-Newsletter No. 5. [Available online](#) 1

INVITED
PRESENTATIONS

Baumann, M. Cambios de uso del suelo y emisiones de carbon en el Chaco 1985-2013. *Instituto Nacional de Tecnologia Agropecuaria (I.N.T.A.)*. Oct. 5th 2015 2

Baumann, M. Land-use changes in the Caucasus during and after the Nagorno-Karabakh conflict. Dept. of Environmental Science, Policy and Management. *University of California at Berkeley*. Oct. 7th 2014 1

CONFERENCE
CONTRIBUTIONS

Baumann, M., Hostert, P., Rufin, P. (2019). Towards revising the planetary boundary land. *KOSMOS Conference, Berlin (Germany), August 29-30 2019*

Baumann, M., Levers, C., Macchi, L., Gasparri, N.I., Kuemmerle, T. (2019). Understanding smallholders' impacts on continuous fields of tree and shrub cover in the Chaco using Sentinel-1 and Landsat 8 data. *ESA Living Planet Symposium 2019, Milan (Italy), May 13-17 2019.*

Hostert, P., **Baumann, M.,** Gerten, D., Kuemmerle, T., van der Linden, S., Lucht, W., Rufin, P. (2019). Quantifying a planetary land systems boundary. *GLP Open Science Meeting 2019, Bern (Switzerland), April 24-26, 2019.*

Baumann, M., Peters, J., Christiansen, R., Butsic, V., Kuemmerle, T. (2019). Understanding the effects of armed conflict on tropical forest loss. *GLP Open Science Meeting 2019, Bern (Switzerland), April 24-26, 2019.*

De Marzo, T., **Baumann, M.,** Gaertner, P., Gasparri, N.I., Pflugmacher, D., Lambin, E.F., Kuemmerle, T. (2019). Relationships among forest disturbances, land use and woody cover patterns: an approach to forest degradation assessment in tropical dry forests. *GLP Open Science Meeting 2019, Bern (Switzerland), April 24-26, 2019.*

Dara, A., Kuemmerle, T., **Baumann, M.,** Kamp, J., Hölzel, N., Freitag, M., Hostert, P. (2019). Mapping agricultural abandonment and assessing its consequences. *GLP Open Science Meeting 2019, Bern (Switzerland), April 24-26, 2019.*

Levers C., Piquer-Rodriguez M., Gollnow F., **Baumann M.,** Gasparri N.I., Gavier-Pizarro G.I., le Polain de Waroux Y., Müller D., Müller R., Volante J.N., Kuemmerle T. (2019) Scenarios of commodity frontier expansion in the Gran Chaco and their environmental impacts. *GLP Open Science Meeting 2019, Bern (Switzerland), April 24-26, 2019.*

Semper-Pascual, A., Decarre, J., **Baumann, M.,** di Blanco, Y., Camino, M., Gómez-Valencia, B., Kuemmerle, T. (2018). Stark increase in potential sink habitat for Giant Anteaters in the Argentine Dry Chaco due to land-use change. *IUFRO Conference, Posadas (argentina), October 1-5 2018.*

Niedballa, J., **Baumann, M.**, Kuemmerle, T., bin Mohamed, A., Hastie, A., Ong, R., Wilting, A. (2018) Combining Landsat time series and time-calibrated occupancy modelling to predict species distributions in tropical forests in space and time. *55th Annual Meeting of the Association for Tropical Biology and Conservation (ATBC), Kuching (Malaysia) July 1-5 2018.*

Yin, H., Butsic, V., **Baumann, M.**, Kuemmerle, T., Prishchepov, A.V., Buchner, J., Bragina, E., Radeloff, V.C. (2018) Chechen Wars triggered land-use change in the North Caucasus. *AAG Annual Meeting, New Orleans (USA), April 10-14 2018.*

Dara, A., **Baumann, M.**, Kuemmerle, T., Pflugmacher, D., Rabe, A., Griffiths, P., Hölzl, N., Kamp, J., Freitag, M., Hostert, P. (2018) Revealing spatial and temporal patterns of cropland abandonment and recultivation northern Kazakhstan after the breakdown of the Soviet Union. *Status Symposium of the Volkswagen Foundation. Almaty (KAZ) April 16-19 2018.*

Baumann, M., Bleyhl, B., Kamp, J., Dara, A., Prishchepov, A.V., Kraemer, R., Urazaliev, R., Hölzl, N., Kuemmerle, T. (2018). Cropland abandonment, rewilding and protected area connectivity in the steppes of Kazakhstan. *Status Symposium of the Volkswagen Foundation. Almaty (KAZ) April 16-19 2018*

Romero-Muñoz, A., **Baumann, M.**, Camino, M., Decarre, J., Giordano, A., Gomez, B., Noss, A.J., Thompson, J., Torres, R., Kuemmerle, T. (2017). Land-use change and direct threats as drivers of jaguar and puma habitat loss in the Gran Chaco. *28th International Congress for Conservation Biology. Cartagena (Col), July 23-27 2017.*

Semper Pascual, A., **Baumann, M.**, Blendinger, P.G., Decarre, J., Gomez, B., Kuemmerle, T., Macchi, L., Mastrangelo, M., Sabatini, F., (2017) Time-delayed responses to land-use changes reveal a window of opportunity for biodiversity. *28th International Congress for Conservation Biology. Cartagena (Col), July 23-27 2017*

Kuemmerle, T., **Baumann, M.**, Conti, G., Gasparri, N.I., Gavier Pizarro, G., Macchi, L., Romero-Muñoz, A (2017). Identifying carbon corridors between priority areas for conservation in the South American Chaco. *28th International Congress for Conservation Biology. Cartagena (Col), July 23-27 2017*

Piquer-Rodriguez, M., **Baumann, M.**, Butsic, V., Gasparri, N.I., Gavier Pizarro, G., Volante, J., Kuemmerle, T. (2016). Alternative economic policies and future land-use in Northern Argentina. *Global Land Programme Open Science Meeting. Beijing (CN), Oktober 24-29 2016*

Baumann, M., Levers, C., Haberl, H. (2016). Competition for land-based ecosystem services at multiple geographic scales. Contributed Session, *Global Land Programme Open Science Meeting. Beijing (CN), Oktober 24-29 2016*

Baumann, M., Kamp, J., Bleyhl, B., Kuemmerle, T. (2016). Cropland abandonment, re-cultivation and protected area effectiveness in the steppes of Kazakhstan. *Global Land Programme Open Science Meeting. Beijing (CN), Oktober 24-29 2016*

Baumann, M., Kuemmerle, T., Bleyhl, B., Kamp, J., Prishchepov, A. (2016). Cropland abandonment, rewilding and its effect on protected area connectivity in Kazakhstan. *North American Congress for Conservation Biology. Madison WI (USA), July 17-20 2016.*

Kuemmerle, T., **Baumann, M.**, Macchi, L., Gasparri, N.I., Piquer Rodriguez, M., Volante, J.N., Gavier Pizarro, G. (2016). Carbon emissions due to land-use change and carbon corridors between conservation priority areas in the South American Chaco. *North American Congress for Conservation Biology. Madison WI (USA), July 17-20 2016.*

Bleyhl, B., **Baumann, M.**, Askerov, E., Bragina, E., Gavashelishvili, A., Ghoddousi, A., Khorozyan, I., Manvelyan, K., Radeloff, V.C., Sipko, T., Trepet, S., Weinberg, P., Zazanashvili, N., Kuemmerle, T. (2016). Large mammal habitat distribution and connectivity in the Caucasus. *North American Congress for Conservation Biology. Madison WI (USA), July 17-20 2016.*

Hamilton, C.M., **Baumann, M.**, Pidgeon, A.M., Thogmartin, W., Heglund, P., Radeloff, V.C. (2016). Past and predicted future effects of housing growth on open space conservation and habitat connectivity around National Wildlife Refuges. *North American Congress for Conservation Biology. Madison WI (USA), July 17-20 2016*

Burnham, J.W., **Baumann, M.**, Radeloff, V.C., Pidgeon, A.M., Barzen, J., Wu, H., Yang, X. (2016). Black-necked Crane habitat selection and land cover change at China's Napahai wetland from 1990-2010. *North American Congress for Conservation Biology. Madison WI (USA), July 17-20 2016*

Santos, M.J., **Baumann, M.**, Rosalino, L.M., Matos, H.M., Esgalhado, C., Driesen, S., Santos-Reis, M., Ustin, S.L. (2016) Adequacy of remote sensing to assess productivity-habitat associations in Mediterranean-type ecosystems. *Living Planet Symposium (LPS). Prague May 9-12 2016*

Dara, A., **Baumann, M.**, Kuemmerle, T., Mueller, D., Hostert, P. (2016). Mapping cropland abandonment and re-cultivation in Northern Kazakhstan from 1984 to 2015 using dense Landsat time series. *Living Planet Symposium (LPS). Prague May 9-12 2016*

Baumann, M., Kuemmerle, T., Piquer-Rodriguez, M., Gasparri, N.I. (2015). Carbon emissions from land-use change in the Chaco. *Deutscher Kongress für Geographie (DKG). Berlin Sep 28-30 2015.*

Baumann, M., Pflugmacher, D., Hostert, P., Griffiths, P., Kuemmerle, T. (2015). Farmland abandonment in the EU: Combining satellite data and a

literature research. *Deutscher Kongress für Geographie (DKG). Berlin Sep 28-30 2015.*

Kuemmerle, T., Estel, S., **Baumann, M.**, Levers, C., Mueller, D., Erb, K., Verburg, P. (2015). Farmland abandonment and intensification in Europe since 1990. *World-IALE, Portland OR (USA), July 5-8 2015.*

Baumann, M., Kuemmerle, T., Avedian, V., Radeloff, V.C. (2015) Warfare as a(nother) trigger for regime shifts in land-use systems: The case of Nagorno-Karabakh. *World-IALE, Portland OR (USA), July 5-8 2015.*

Hostert, P., **Baumann, M.**, Griffiths, P., Kuemmerle, T., Kuenzer, C., van der Linden, S., Muller, H., Pflugmacher, D., Rufin, P., Senf, C. (2015) Time series analysis: Potentials and challenges exploiting optical satellite data for Land System Science. *36th International Symposium on Remote Sensing of Environment, Berlin (GER), May 11-15 2015*

Baumann, M., Ozdogan, M., Radeloff, V.C., Hostert, P., Kuemmerle, T. (2014). Landsat Green-Leaf Phenology using Dynamic Time Warping and all available Landsat data. *Sentinel-2 for Science Workshop, Frascati (IT), May 20-22 2014.*

Jakimow, B., Griffiths, P., Muller, H., **Baumann, M.**, Hostert, P. (2014). Exploring dense Landsat time series to monitor forest change in the Brazilian Amazon. *Sentinel-2 for Science Workshop, Frascati (IT), May 20-22 2014.*

Baumann, M., Radeloff, V.C., Avedian, V., Kuemmerle, T. (2014). Direct and displacement effects on land-use change during the Nagorno-Karabakh conflict. *Global Land Project Open Science Meeting (GLP-OSM) 2014, Berlin (GER), Mar 19-21 2014*

Kuemmerle, T., **Baumann, M.**, Butsic, V., Shortland, A., Radeloff, V.C., Brueck, T. (2014). Warfare effects on land system dynamics. *Global Land Project Open Science Meeting (GLP-OSM) 2014, Berlin (GER), Mar 19-21 2014*

Baumann, M., Ozdogan, M., Radeloff, V.C. (2014) Modelling green-leaf Phenology using all available Landsat data and dynamic time warping (DTW). *NASA/EARSeL-Workshop 2014, Berlin (GER), March 17-18 2014.*

Ostapowicz, K., Griffiths, P., Munteanu, C., **Baumann, M.**, Kuemmerle, T., Hostert, P., Radeloff, V.C. (2014). Land-Cover mapping at the regional scale with use of Landsat data: The Carpathian case study. *NASA/EARSeL-Workshop 2014, Berlin (GER), March 17-18 2014.*

Rittenhouse, C.D., **Baumann, M.**, Radeloff, V.C. (2013). Mapping Forest Disturbance and Afforestation to Identify Potential Habitat for New England Cottontail. *Wildlife Society Meeting, Milwaukee, WI, October 9-11 2013.*

Bragina, E., Wendland, K., **Baumann**, M., Sieber, A., Kuemmerle T., Pidgeon A.M., Alexandre P., Radeloff V.C. (2013). Effectiveness of Russian Protected Areas before and after Transition to Post-Socialism. *26th International Congress for Conservation Biology, Baltimore, MD, July 21-25 2013*.

Baumann, M., Wendland, K.J., Ozdogan, M., Radeloff, V.C. (2012). Does separating disturbance types affect modeling of drivers of timber harvest? *IAMO-Forum 2012, Halle (GER), June 20-22 2012*.

Baumann, M. (2012). Reviewing the data gap to perform large scale RS-analyses in the CEEC. *IAMO-Forum 2012, Halle (GER), June 20-22 2012*.

Baumann, M., Ozdogan, M., Radeloff, V.C. (2012) Forest-Cover Changes following Socio-Economic Changes in the Temperate Zone of European Russia. *Planet under Pressure Conference 2012, London (GB), March 26-29 2012*.

Aronson, G., Ozdogan, M., **Baumann**, M., Radeloff, V.C. (2012). Global comparison of automated cloud detection algorithms: A comprehensive assessment. *NASA LCLUC-Meeting, Rockville (MD), April 3-5 2012*.

Radeloff, V. C., C. Alcantara, L. Baskin, E. Bragina, O. Chaskovskyy, M. Dubinin, P. Hostert, J. Knorn, J. Kozak, I. Kruhlov, T. Kuemmerle, A. Lushchekina, D. Mueller, K. Perzanowski, A. Prishchepov, A. Rabe, K. de Beurs, G. Henebry, G. Ioffe, T. Nefedova, M. Ozdogan, D. Aksenov, **M. Baumann**, A. Jaroshenko, K. Wendland, Peter Potapov, M. Hansen, S. Turubanova, C. Woodcock, P. Olofsson, A. Baccini, V. Gancz, R. Houghton, P. Torchinava 2011. The Great Eurasian Transition: Changing social and economic policies and their implications for the World's largest continent. *NASA Carbon Cycle and Ecosystems Joint Science Workshop 3-7 October 2011, Alexandria, Virginia*.

Prishchepov, A. V., V. C. Radeloff, D. Mueller, M. Dubinin, and **M. Baumann** (2011). Determinants of agricultural land abandonment in post-Soviet European Russia. *IAMO Forum, 23-24 June 2011, Halle, Germany*.

Kuemmerle, T., P. Olofsson, **M. Baumann**, O. Chaskovskyy, V. C. Radeloff, C. Woodcock, and P. Hostert (2011). Land use changes during the Soviet and post-Soviet era and their effects on carbon fluxes in Western Ukraine. *The 31st EARSEL Symposium, 30 May – 2 June 2011, Prague, Czech Republic*.

Baumann, M., Ozdogan, M., Radeloff, V.C., Kuemmerle, T., Wendland, K.J., Esipova, E. (2011): Regional Difference of post-Soviet forest disturbance in temperate European Russia. *ASPRS Annual Conference, Milwaukee (WI), May 2-5*.

Ozdogan, M., **Baumann**, M., Wendland, K.J., Radeloff, V.C., Aksenov, D. (2011): Linking Past to Present in European Russia's Temperate Forests. *NASA LCLUC-Meeting, Bethesda (MD), March 29*.

Kuemmerle, T., Olofsson, P., Chaskovskyy, O., **Baumann**, M., Ostapowicz, K., Woodcock, C.E., Houghton, R.A., Hostert, P., Keeton, W.S., Radeloff,

V.C. (2010): Logging and land abandonment in Western Ukraine: effects on carbon fluxes and future carbon storage potential. *Forum Carpaticum, Krakow (Poland), September 15-17*

Baumann, M., Kuemmerle, T., Radeloff, V.C., Ozdogan, M., Prishchepov, A.V., Elbakidze, M., Hostert, P. (2010): Determinants of Post-Socialist Farmland Abandonment in the Ukrainian Carpathians. *GLP Open Science Meeting, Tempe (AZ), October 17-19.*

Kuemmerle, T., Olofsson, P., **Baumann, M.**, Radeloff, V.C., Woodcock, C., Hostert, P. (2010): Post-Soviet farmland abandonment and carbon storage in Western Ukraine. *GLP Open Science Meeting, Tempe (AZ), October 17-19.*

Prishchepov, A.V., Radeloff, V.C., Mueller, D., Wendland, K., **Baumann, M.**, Kuemmerle, T. (2010): Impact of rapid socio-economic change on land-use: detecting agricultural land abandonment and analyzing its drivers in post-Soviet Russia. *GLP Open Science Meeting, Tempe (AZ), October 17-19.*

Prishchepov, A.V., Radeloff, V.C., Dubini, M.Y., Alcantara, C., **Baumann, M.**, Kuemmerle, T., Muller, D., Wendland, K. (2010): Massive socio-economic changes and land-use change: detecting agricultural land abandonment and its drivers in post-Soviet Eastern Europe. *NASA Science-Team Meeting. Tartu (Estonia), August 25-28.*

Baumann, M., Kuemmerle, T., Radeloff, V.C., Ozdogan, M., Elbakidze, M., Prishchepov, A.V., Hostert, P. (2010): Drivers of Farmland Abandonment in Western Ukraine. *NASA Science-Team Meeting. Tartu (Estonia), August 25-28.*

Prishchepov, A.V., Radeloff, V.C., Dubinin, M.Y., Alcantara, C., **Baumann, M.**, Kuemmerle, T., Muller, D., Wendland, K. (2010): Effects of massive socio-economic changes on land-use change: detecting agricultural land abandonment and understanding its drivers in post-soviet Eastern Europe. *NASA Science-Team Meeting. Bethesda MD, April 19-22.*

Radeloff, V.C., Alcantara, C., Baskin, L., Chaskovskyy, O., Dubinin, M., Hostert, P., Knorn, J., Kozak, J., Kruhlov, I., Kuemmerle, T., Lushchekina, A., Mueller, D., Perzanowski, K., Prishchepov, A., Rabe, A., de Beurs, K., Henebry, G., Ioffe, G., Nefedova, T., Ozdogan, M., Aksenov, D., **Baumann, M.**, Jaroshenko, A., Wendland, K. (2010): Land Changes and Institutional Drivers in the NEESPI region. *NASA Science-Team Meeting. Bethesda MD, April 19-22.*

Wendland, K., Radeloff, V.C., Ozdogan, M., Lewis, D., **Baumann, M.**, Aksenov, D., Yaroshenko, A., Prishchepov, A.V. (2010): Impacts of new market institutions on timber harvesting in European Russia. *NASA Science-Team Meeting. Bethesda MD, April 19-22.*

SERVICES AND
SUPERVISION

**BSc/MSc-Supervision
(ongoing)**

K. Vergara, I. Carpenter, S. Dahal, J. Bartsch, G. Hussels

**MSc-Supervision
(finalized)**

*D. Funke (2014), V. Fehlenberg (2015), F. Pötzschner (2019), S. Thomsen (2019),
P. Pérez (2021), M. Prutzer (2021)*

**BSc-Supervision
(finalized)**

*L. Furch (2016), R. Kückes (2017), I. Grünberg (2019), J. Otto (2019), R.
Wilbrandt (2020)*

Outreach activities

2014, 2015: High-School visits to teach about Land-Use Change

2015, 2016: Berliner Schuelergesellschaft

2016: Arbeitsmarkt fuer Geographen

*2016: Interview on deforestation in the Chaco @ Humboldt-University News
(<https://hu.berlin/16385>)*

*2017: appearance in several newspapers in the Context of the Chaco-work. For a
complete list of references, please write separately to matthias.baumaann@hu-berlin.de*

2017: Interview for frontal21 (ZDF)

Reviewer for

*Landscape Ecology, Land Use Policy, Mountain Research and Development,
Environmental Research Letters, Journal of Mountain Science, International
Journal of Remote Sensing, Remote Sensing of Environment, Journal of Land Use
Science, Remote Sensing Letters, AMBIO, IEEE Journal of Selected Topics in
Applied Earth Observations and Remote Sensing, International Journal of Applied
Earth Observation and Geoinformation, Regional Environmental Change, ISPRS
Journal of Photogrammetry and Remote Sensing, Remote Sensing, Canadian
Journal of Forest Research, Forest Ecology and Management, Global Change
Biology, Biological Conservation, Global Ecology and Biogeography, HELIYON,
Nature Communications, Global Ecology and Conservation, Remote Sensing in
Ecology and Conservation*

Other

*2014-2016 & 2016-2018, Elected member of the Institutional Board,
Geography Department, Humboldt-University Berlin*

*2018-2020, Elected Member of University Council, Humboldt-University
Berlin*

*Since 2016. Member of the departmental budget commission, Geography
Department, Humboldt-University Berlin (during 2019 as head of the
commission)*

*Since 2018. Co-Founder and officer of the IRI-THEsYS PostDoc network,
Humboldt-University Berlin*

Since 2018. Vehicle management, Humboldt-University Berlin

*Since 2021: Founding member of the working group on Diversity at the
Geography Department, Humboldt-Universität zu Berlin*

*Since 2021: Member of the working group "Peer Counseling" (Kollegiale
Beratung) at Humboldt-University Berlin*