

CURRICULUM VITAE

H. Curtis Monger, Ph.D.

Professor Emeritus

New Mexico State University,

Department of Plant and Environmental Sciences,

Skeen Hall Room N127, Box 30003, MSC 3Q, 945 College Drive

Las Cruces, NM 88003

cmonger@nmsu.edu, 575-915-8289

National Leader Soil Survey Standards, USDA-NRCS (retired)

EDUCATION

University of Tennessee	B.S.	1981	Plant and Soil Science (with honors)
University of Tennessee	M.S.	1986	Geology
New Mexico State University	Ph.D.	1990	Agronomy, Minor: Geology

PROFESSIONAL EXPERIENCE

USDA-NRCS National Leader of Soil Survey Standards (GS-15)	2015 - 2021
National Soil Survey Center, Lincoln, Nebraska	

Distinguished Achievement Professor	2012 - 2015
New Mexico State University, Las Cruces, NM	
Department of Plant and Environmental Sciences	

Professor	2004 - 2012
Pedology and Environmental Science	
New Mexico State University, Las Cruces, NM	
Department of Plant and Environmental Sciences	

Associate Professor	1998 - 2004
Pedology	
New Mexico State University, Las Cruces, NM	
Dept. of Agronomy and Horticulture	

Assistant Professor	1992 - 1998
Pedology	
New Mexico State University, Las Cruces, NM	
Dept. of Agronomy and Horticulture	

Project Director	1990 - 1992
Department of Defense, Fort Bliss, Texas	
Geoarchaeology, Soils, Geomorphology, and Paleoclimate of Ft. Bliss	

Soil Scientist	1984
Oak Ridge National Laboratory	
Oak Ridge, TN and University of Tennessee, Knoxville, TN	

Soil Scientist	1981 - 1982
USDA-Soil Conservation Service	

Chester County, Tennessee

Primary Research Interests

Soil-geomorphic-ecosystem response to current and past climate change; Carbon sequestration and biomineralization in desert soils and ecosystems; Environmental science; Geoarchaeology.

Professional Recognitions and Service

2022 Outstanding Alumni 2022, Plant and Environmental Sciences, NMSU
2018 Chair, International Union of Soil Science, Commission 1.4, Soil Classification
2015 Fellow, Soil Science Society of America
2015 Faculty Appreciation Award, Dept. Plant and Environmental Sciences
2015 Meritorious Service Award, New Mexico State University
2012 Distinguished Achievement Professor, New Mexico State University
2010 Recipient, U.S. National Cooperative Soil Survey Achievement Award
2010 Co-Recipient, Distinguished Scientist Award, given collectively to PIs of the LTER Network by the American Institute of Biological Sciences.
2009 Chair, Soil Mineralogy Division, Soil Science Society of America
2009 Host, National Cooperative Soil Survey Biennial Meeting
2008 Host, National Cooperative Soil Survey Soil-Geomorphology Institute
2002 Distinguished Research Award, College of Agriculture and Home Economics, NMSU
2002 Host, National Soil Science Institute
2000 Roush Award for Teaching Excellence, New Mexico State University
1999 Distinguished Teaching Award, College of Agriculture & Home Economics, NMSU
1990 Outstanding Graduate Student Research Award, Sigma Xi, Las Cruces Chapter

Graduate Student Mentorship

Sa'eb Khresat	Ph.D. (1993)	Rebecca Kraimer	Ph.D. (2003)
Arnulfo Encina	M.S. (1995)	Alfonso Serna-Perez	Ph.D. (2004)
Brenda Buck	Ph.D. (1996)	Mike Duniway co-advised	Ph.D. (2006)
John Kipp	Ph.D. (1998)	Stacey Weems	M.S. (2006)
Robert Gallegos	M.S. (1999)	Justin Riggs	M.S. (2008)
Juan Martinez	Ph.D. (1999)	Janella Cruz	M.S. (2008)
Alfredo Granados	Ph.D. (2000)	Keith Crossland co-advised	M.S. (2012)
Gordon Michaud	M.S. (2000)	David Rachal co-advised	Ph.D. (2012)
Marco Inzuna	Ph.D. (2002)	Darroc Goolsby co-advised	Ph.D. (2012)
Xiaoyun Liu	Ph.D. (2002)	Jeremy Klass co-advised	Ph.D. (2012)
Haiyang Xing	M.S. (2002)	Lauren Svejcar co-advised	M.S. (2012)
		Helena Deswood co-advised	M.S. (2014)
		Ella McKinney	M.S. (2015)
		Danny Itkin co-advised	Ph.D. (2023)
		John Begay co-advised	M.S. (2025)
		Gladys Ayamga co-advised	M.S. (2025)

Professional Activities

2024 World Resource Base Board Member Excursion, Hokkaido, Japan
2023 World Resource Base Board Member Excursion, Catalonia, Spain
2022 World Resource Base Board Member Excursion, Reykjavik, Iceland
2022 World Resource Base Board Member Excursion, Juriquilla, Mexico
2022 Intl Union of Soil Science Research Forum Conf., Glasgow, Scotland
2020 NRCS Liaison to North Central Coop. Soil Survey Conf., Columbia, MO
2019 Intl Soil Classification Congress Scientific Committee, UNAM, Mexico
2018 Interdivisional Speaker and Convener, Intl Union Soil Science, Rio de Janeiro

2017	USDA-NRCS Liaison to European Geosciences Union Conf., Vienna, Austria
2016	USDA-NRCS Liaison to Intl Expert Consultation on Standards, Berlin, Germany
2016	USDA-NRCS Liaison to Intl Soil Classification Conference, South Africa
2015	USDA-NRCS Liaison to Intl Conference on Sustainable Food Security, Thailand
2015	Daniel Yaalon Symposium Scientific Committee, Vienna, Austria
2012-2014	Associate Editor, <i>Soil Science Society of America Journal</i>
2012-2013	Guest Co-Editor, <i>Spanish Journal of Soil Science</i>
2011-2018	International Union of Soil Science Working Group Universal Soil Classification
2012	Global Carbon Cycle and Deserts Conf. Collaborator, Beijing and Urumqi, China
2009-2015	Advisory Group to NRCS Soil Survey Division Director
2008	Lecturer and Micromorphology Session Chair, Inner Mongolia, Chengdu, China
2008	National Organizing Committee for Joint Geology/Soil Science conferences
2007	Tour Leader, 50 th Anniversary Desert Soil-Geomorphology Tour
2007	Co-chair, National Gypsum Task Force
2003	National Science Foundation, Geology and Paleontology Review Panel
2000-2002	Co-Chair, National Cooperative Soil Survey Research Needs Committee
1996-2006	Associate Editor, <i>Arid Land Research and Management</i>

Teaching

2005-2015	Introductory Environmental Science (110G)
1992-2015	Soil Classification (472) and Advanced Soil Classification (630)
1992-2005	Introductory Soil Science (252) on a rotational basis
1992-2005	Soil Genesis (520)
Intermittent	Chihuahuan Desert Ecosystems, Soil Micromorphology, Soil Mineralogy

Journal Articles

Kimsal, C.R., Enrique R. Vivoni, Osvaldo E. Sala, H. Curtis Monger, and Owen P. McKenna (in press) Hydrologic dynamics of ephemerally flooded playas in a dryland environment. ***Water Resources Research***.

Monger, H.C., and J.W. Hawley. 2025. The USDA Desert Soil-Geomorphology Project (1957-1972) ***Advances in Agronomy*** 192. ISSN 0065-2113, <https://doi.org/10.1016/bs.agron.2025.03.002>.

Monger, C. and M. Bronnikova. 2025. Soil memory of bioclimatic changes in the northern Chihuahuan Desert, USA. ***CATENA*** 254. doi.org/10.1016/j.catena.2025.108944

Jung, P., Laura Briegel-Williams, Stefan Dultz, Carina Neff, Gunnar Heibrock, Curtis Monger, Nicole Pietrasiak, Lena Keller, Julia Hale, Jan Friedek, Timo Schmidt, Georg Guggenberger, and Michael Lakatos, 2024. Hard shell, soft blue-green core ecology, processes and modern applications of calcification in terrestrial cyanobacteria ***iSCIENCE-D-24-08224R2***. doi.org/10.1016/j.isci.2024.111280

Nyachoti, S.K., V.H. Garcia, C. Monger, C. Tweedie, T.E. Gill, L. Jin, L. Ma. 2024. Uranium-series and strontium isotope systematics in soil carbonates from dryland Critical Zones: Implications for soil inorganic carbon storage and transformation. ***Geochimica et Cosmochimica Acta***, 377:34-51.

- Monger, C., E. Michéli, F. Aburto, D. Itkin. 2024. Soil classification as a tool for contributing to sustainability at the landscape scale and forecasting impacts of management practices in agriculture and forestry. *Soil & Tillage Research*, 244, 106216. <https://doi.org/10.1016/j.still.2024.106216>.
- Itkin*, D., R. Poch, C. Monger, U. Shaanan, J. Bolòs, O. Crouvi, N. Ben Hagai, and H. Goldfus. 2022. Pedology of archaeological stone-wall bench terraces. *Geoderma* 428 (2022) 116129. <https://doi.org/10.1016/j.geoderma.2022.116129>
- Lal R, Monger C, Nave L, Smith P. 2021 The role of soil in regulation of climate. *Phil. Trans. R. Soc. B* 376: 20210084. <https://doi.org/10.1098/rstb.2021.0084>
- Lal R, Johan Bouma, Eric Brevik, Lorna Dawson, Damien J. Field, Bruno Glaser, Ryusuke Hatano, Alfred E. Hartemink, Takashi Kosaki, Bruce Lascelles, Curtis Monger, Cristine Muggler, Georges Martial Ndzana, Stefan Norra, Xicai Pan, Remigio Paradelo, Laura Bertha Reyes-Sánchez, Taru Sandén, Bal Ram Singh, Heide Spiegel, Junta Yanai, Jiabao Zhang. 2021. Soils and sustainable development goals of the United Nations: An International Union of Soil Sciences perspective. *Geoderma Regional*. e00398. <https://doi.org/10.1016/j.geodrs.2021.e00398>.
- Stolt, Mark, Anthony T. O'Geen, Dylan E. Beaudette, Patrick J. Drohan, John M. Galbraith, David L. Lindbo, H. Curtis Monger, Brian A. Needelman, Michel D. Ransom, Martin C. Rabenhorst, and Joey N. Shaw. 2021. Changing the hierarchical placement of soil moisture regimes in Soil Taxonomy. *Soil Sci. Soc. Am. J.* <https://doi.org/10.1002/saj2.20219>
- Rattan Lal, Eric C. Brevik, Lorna Dawson, Damien Field, Bruno Glaser, Alfred E. Hartemink, Ryusuke Hatano, Bruce Lascelles, Curtis Monger, Thomas Scholten, Bal Ram Singh, Heide Spiegel, Fabio Terribile, Angelo Basile, Yakun Zhang, Rainer Horn, Takashi Kosaki and Laura Bertha Reyes Sánchez. 2020. Managing Soils for Recovering from the COVID-19 Pandemic. *Soil Syst.* 4, 46; doi:10.3390/soilsystems4030046
- Khormali*, Farhad, Curtis Monger. 2020. Hot desert soils—Global distribution and unique characteristics. *Geoderma Regional* Volume 23. <https://doi.org/10.1016/j.geodrs.2020.e00330>.
- Ji, W., N. P. Hanan, D. M. Browning, H. C. Monger, D. P. C. Peters, B. T. Bestelmeyer, S. R. Archer, C. W. Ross, B. M. Lind, J. Anchang, S. S. Kumar, and L. Prihodko. 2019. Constraints on shrub cover and shrub–shrub competition in a U.S. southwest desert. *Ecosphere* 10(2):e02590. 10.1002/ecs2.2590
- Itkin*, Danny, Onn Crouvi, H. Curtis Monger, Uri Shaanan, Haim Goldfus. 2018. Pedology of archaeological soils in tells of the Judean foothills, Israel. *Catena*. 168:47-61. <https://doi.org/10.1016/j.catena.2018.03.014>.
- Salley, Shawn, H. Curtis Monger, Joel R. Brown. 2016. Completing the Land Resource

Hierarchy. *Rangelands*. Volume 38, Issue 6, December 2016, Pages 313-317

- Itkin*, D, Goldfus H, and Monger HC. 2016. Human induced calcretisation in anthropogenic soils and sediments: Field observations and micromorphology in a Mediterranean climatic zone, Israel. *Catena* 146: 48-61.
- Brevik, EC, Richter D, Verrecchia EP, Ryan J, Poch RM, Crouvi O, Sauer D, Waroszewski J, Solleiro-Rebolledo E, Monger HC, Ottner F, and Targulian V. 2016. The influence of Dan H. Yaalon: His impact on people. *Catena* 146:147-154.
- Stout B, Lal R, Monger C. 2016. Carbon capture and sequestration: The roles of agriculture and soils. *Int J Agric & Biol Eng*, 9(1): 1–8
- Wang*, J., C Monger, X Wang, M Serena, B Leinauer. 2016. Carbon sequestration in response to grassland–shrubland–turfgrass conversions and a test for carbonate biomineralization in desert soils, New Mexico, USA. *SSSAJ* 80:1591-1603. doi:10.2136/sssaj2016.03.0061
- Monger, H.C., Rebecca A. Kraimer, Sa'eb Khresat, David R. Cole, Xiujun J. Wang, Jiaping P. Wang. 2015. Sequestration of inorganic carbon in soil and groundwater. *Geology* 43:375-378. doi:10.1130/G36449.1.
- Monger, H.C., O.E. Sala, M. Duniway, H. Goldfus, I.A. Meir, R.M. Poch, H.T., and E.R. Vivoni. 2015. Legacy effects in linked ecological–soil–geomorphic systems of drylands. *Frontiers in Ecology and the Environment* 13(1): 13–19, doi:10.1890/140269.
- Khormali*, F., H.C. Monger, Y. Feng. 2014. Experimental micropedology—A technique for investigating soil carbonate biogenesis along a desert-grassland-forest transect, New Mexico, USA. *Spanish Journal of Soil Science* 4: 1-18. DOI: 10.3232/SJSS.2014.V4.N1.01.
- Monger, H.C. and P. H. Cooke. 2013. Soil micromorphology and the Anthropocene—cross-scale connections and technology trends. *Spanish Journal of Soil Science* 3:1-13.
- Monger, H.C. and D.M. Rachal. 2013. Soil and landscape memory of climate change: how sensitive, how connected? *Society of Sedimentary Geology Special Publication* 104. p. 63-70.
- Michaud*, G.A., H.C. Monger, D.L. Anderson. 2013. Geomorphic-vegetation relationships using a geopedological classification system, northern Chihuahuan Desert, USA. *Journal of Arid Environments* 90:45-54
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- Throop, H.L., S.R. Archer, H.C. Monger, S. Waltman. 2012. When bulk density methods matter: Implications for estimating soil organic carbon pools in rocky soils. *Journal of Arid Environments* 77:66-71
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- Duniway*, M.C., J.E. Herrick, and H.C. Monger. 2007. The high water holding capacity of petrocalcic horizons. *Soil Science Society of America Journal* 71:812-819.
- Liu*, X., H.C. Monger, and W.G. Whitford. 2007. Calcium carbonate in termite galleries—biomineralization or upward transport?" *Biogeochemistry* 82:241-250.
- Peters, D.P.C., B.T. Bestelmeyer, J.E. Herrick, E.L. Fredrickson, H.C. Monger, and K.M. Havstad. 2006. Disentangling complex landscapes: new insights into arid and semiarid system dynamics. *BioScience* 56:491-501.
- Monger, H.C. and B.T. Bestelmeyer. 2006. The soil-geomorphic template and biotic change in arid and semiarid ecosystems. *Journal of Arid Environments* 65:207-218.
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- emissions from exhumed petrocalcic horizons. *Soil Science Society of America Journal* 70:795-805.
- Kraimer*, R.A., H.C. Monger, and R.L. Steiner. 2005. Mineralogical distinctions of carbonates in desert soils. *Soil Science Society of America Journal* 69:1773-1781.
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- Inzunza-Ibarra*, M.A. and H.C. Monger. 2005. Historical analysis of the irrigation evolution of La Laguna region of Mexico. *Terra* 23:363-370.
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- Buck*, B.J., J.M. Kipp*, and H.C. Monger. 2002. Inverted clast stratigraphy in an eolian archaeological environment. *Geoarchaeology* 17:665-687.
- Deutz, P., I.P. Montañez, and H.C. Monger. 2002. Morphology and stable and radiogenic isotope composition of pedogenic carbonate in late Quaternary relict soils, New Mexico: an integrated record of pedogenic overprinting. *Journal of Sedimentary Research* 72:809-822.
- Martinez-Rios*, J.J. and H.C. Monger. 2002. Soil classification in arid lands with Thematic Mapper data. *Terra* 20:89-100.
- Deutz, P., I.P. Montañez, H.C. Monger, and J. Morrison. 2001. Derivation of a palaeoenvironmental record from pedogenic carbonates in buried and relict Quaternary soils, Rio Grande Rift, New Mexico. *Palaeogeography, Palaeoclimatology, and Palaeoecology* 166:293-317.
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- Buck*, B.J. and H.C. Monger. 1999. Stable isotopes and soil-geomorphology as indicators of Holocene climate change, northern Chihuahuan Desert. *Journal of Arid Environments* 43:357-373.
- Granados-Olivas*, A. and H.C. Monger. 1999. Remote sensing technology for development planning along the US-Mexico border: hydrogeology and geomorphology. *New Mexico Journal of Science* 39:123-137.
- Buck*, B.J., R.L. Steiner, G. Burgett, and H.C. Monger. 1999. Artifact distribution and its relationship to microtopographic geomorphic features in an eolian environment, Chihuahuan Desert. *Geoarchaeology* 14:735-754.

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- Monger, H.C. and Adams. 1996. Micromorphology of calcite-silica deposits, Yucca Mountain, Nevada. *Soil Science Soc. Am. J.* 60:519-530.
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- Monger, H.C. and D.R. Cole. 1994. Climate, CO₂, and plant abundance—Reply. *Nature* 372:626.
- Cole, D.R. and H.C. Monger. 1994. Influence of atmospheric CO₂ on the decline of C₄ plants during the last deglaciation. *Nature* 368:533-536.
- James, W.C., G.H. Mack, and H.C. Monger. 1993. Classification of paleosols: discussion and reply. *Geological Society of America Bulletin* 105:1635-1637.
- Mack, G.H., W.C. James, and H.C. Monger. 1993. Classification of paleosols. *Geol. Soc. Am. Bull.* 105:129-136.
- Monger, H.C. and L.A. Daugherty. 1991. Neoformation of palygorskite in a southern New Mexico Aridisol. *Soil Sci. Soc. Am. J.* 55:1646-1650.
- Monger, H.C. and L.A. Daugherty. 1991. Pressure solution: possible mechanism for silicate grain dissolution in a petrocalcic horizon. *Soil Sci. Soc. Am. J.* 55:1625-1629.
- Monger, H.C., L.A. Daugherty, W.C. Lindemann, and C.M. Liddell. 1991. Microbial precipitation of pedogenic calcite. *Geology* 19:997-1000.

(*Student advised or co-advised by Monger and his postdocs or visiting sabbatical scientists)

Books and Chapters

- Soil Science Division Staff. 2017. *Soil Survey Manual*. C. Ditzler, K. Scheffe, and H. C. Monger (eds.) USDA Handbook 18. Government Printing Office, Washington, D.C.
- Monger, H.C. 2014. Soils as generators and sinks of inorganic carbon in geologic time. pp. 27-36. in *Soil Carbon*. Progress in Soil Science, 27. eds. A.E. Hartemink and K. McSweeney. Springer International Publishing Switzerland. DOI 10.1007/978-3-319-

- Peters, D.P.C., S.A. Archer, B.T. Bestelmeyer, M.L. Brooks, J.R. Brown, A.C. Comrie, H.R. Gimblett, J.H. Goldstein, K.M. Havstad, L. López-Hoffman, H.C. Monger, G.S. Okin, A. Rango, O.E. Sala, C.E. Tweedie, E.R. Vivoni. 2013. Vulnerability of Ecosystem Services to Cumulative Threats That Result in Desertification. Pages 239-258. In: T.R. Seastedt and K.N. Suding, eds. *Ecosystem Functions and Services: Volume 5* In: R.A. Pielke, Sr. Editor-in-Chief. ***Climate Vulnerability: Understanding and Addressing Threats to Essential Resources***. Elsevier.
- Monger, H.C., R.J. Southard, and J.L. Boettinger. 2011. Classification of Soils. p. 33-1 to 34-1. Aridisols. In: P.M. Huang, Y. Li and M.E. Sumner (eds.) ***Handbook of Soil Science***. 2nd Edition. CRC Press, Boca Raton.
- Nordt, L., M.E. Collins, D.S. Fanning, and H.C. Monger. 2011. Classification of Soils. p. 33-1 to 34-1. Entisols. In: P.M. Huang, Y. Li and M.E. Sumner (eds.) ***Handbook of Soil Science***. 2nd Edition. CRC Press, Boca Raton.
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- Gillette, D. and H.C. Monger. 2006. Eolian processes. In K. Havstad, Huenneke, L.F., and Schlesinger, W.H., eds. ***Structure and Function of a Chihuahuan Desert Ecosystem: the Jornada Basin Long Term Ecological Research Site***. Oxford Univ. Press, Oxford.
- Monger, H.C., J.J. Martinez-Rios, S.A. Kresat. 2005. Arid and semiarid soils. p. 182-187. In D.I. Hillel (ed.) ***Encyclopedia of Soils in the Environment***. Academic Press, London.
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Variability and Ecosystem Response at Long-Term Ecological Research Sites. Oxford University Press, New York.

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- Clemons, R.E. and H.C. Monger. 2003. Source of carbonate lithic artifacts in Pendejo Cave. p. 191-198. In: R.S. MacNeish and J. Libby (eds.) *Pendejo Cave*. University of New Mexico Press, Albuquerque.
- Monger, H.C. and E.F. Kelly. 2002. Silica minerals. p. 611-636. In: J.B. Dixon and D.G. Schluze (eds) *Soil Mineralogy with Environmental Applications*. Soil Sci. Soc. Am. Book Series, 7.
- Monger, H.C. 2002. Arid soils. p. 84-88. In: Lal. R (ed.) *Encyclopedia of Soil Science*. Marcel-Dekker, New York
- Monger, H.C. and L.P. Wilding. 2002. Soil inorganic carbon: composition and formation. p. 701-705. In: Lal. R (ed.) *Encyclopedia of Soil Science*. Marcel-Dekker, New York.
- Monger, H.C. and J.J. Martinez-Rios. 2001. Inorganic carbon sequestration in grazing lands. p. 87-118. In: R.F. Follett et al.(eds) *The Potential of U.S. Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect*. CRC Press, New York.
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- \$79,865 from USDA-NRI to H.C. Monger to study "Holocene grassland dynamics based on soil carbonate C-13 values, Chihuahuan Desert" (1996 to 1998).
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