

Mark A. Anderson

Senior Botanist/Natural Resource Specialist

RELEVANT PROFESSIONAL EXPERIENCE

Mr. Mark A. Anderson is a Senior Botanist/Natural Resource Specialist with Western Plains Consulting, Inc. (WPC), and is responsible for natural resource, wetland, NEPA environmental assessments, biological assessments, and related projects. Mr. Anderson has a long and experienced work history dealing with a variety of natural resource management issues. He is well versed in soil and water conservation issues, and is fully versed and familiar with federal agency protocol related to various wetland and natural resource issues. He is a USDA-NRCS Certified Wetland Determination Specialist.

KEY EXPERIENCE

- **NRCS Certified Wetland Determination Specialist.** Provided training, assistance and guidance to Field and Area Office employees in completing certified wetland determinations. The process was by interpretation and application of the methods in the 1987 Corps of Engineers Wetland Delineation Manual and Regional Supplement(s) and the Food Security Act Wetland Identification Procedures contained in the National Food Security Act Manual Circular 6.
- **Resource Conservationist** working to identify wetland hydrogeomorphic (HGM) class and apply appropriate HGM model: Northern Prairie (low permeability substrate) Potholes; Depressional, Endosaturated, Highly Permeable Substrate (Sand Plain) Wetlands; and Groundwater Discharge, Low Permeability Substrate, Sloped Wetlands. Assessed levels of wetland functions and measured changes in the functional capacity units due to project impacts such as surface drainage, fill, and tile drainage. Determined if wetland manipulations were within Minimal Effects criteria or if the manipulations met the definition of wetland conversion. Determined mitigation credits (functional capacity units) resulting from wetland restoration and creation.
- **Subject Matter Expert** in administrative and technical aspects of the implementation of NRCS Wetland Protection Policy and Wetland Conservation Compliance provisions of the Food Security Act.
- **Member - Interdisciplinary Team** that conducted State Conservationist Reviews of appealed wetland determinations, with lead responsibility for hydrophytic vegetation factor, and, on occasion for the wetland hydrology factor. Assisted with the determination of hydric soils. Developed reports to document findings from off-site data investigations and field investigations. Mr. Anderson also provided recommendations to the NRCS State Resource Conservationist on wetland determination off-site procedures and field procedures.
- **NRCS National Employee Development Center Instructor.** Mr. Anderson was responsible for the development and delivery of course - Wetland Identification for the Food Security Act. Averaged two (2) week-long courses per year at various locations across the United States. Provided training on off-site wetland identification methods, field procedures, plant identification, hydrophytic vegetation indicators, wetland hydrology indicators, assignment of wetland labels, and documentation.
- **Compliance Review Coordinator** for NRCS on Food Security Act Highly Erodible Land and Wetland Conservation provisions, and provided instruction to field offices for selection of tracts of land to be reviewed, reviewed procedures, and interpretation of policy. Mr. Anderson conducted compliance reviews for field offices with heavy workload.
- **Resource Conservationist** that periodically reviewed North Dakota's NRCS standards, specifications, documentation forms, and fact sheets for six (6) conservation practices. Developed tools to facilitate/expedite

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Resume and photograph attachments to Casey and Julie Voigt response

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development/revision of technical data and products and deadlines for North Dakota NRCS Field Office Technical Guide (FOTG), and managed FOTG website. Reviewed documentation and revision drafts of conservation practices assigned to other technical specialists and provided recommendations. Reviewed and submitted comments on draft revisions of NRCS National Handbook of Conservation Practices standards.

- **Resource Conservationist** that reviewed and commented on technical and programmatic documents. Developed content for publications such as the NRCS “Living Landscapes in North Dakota: A Guide to Native Plantscaping.” Provided information to inquiries from the public such as the potential hazard to hunting dogs posed in seed awns and barbs from various grass and weed species. Periodically reviewed and edited the impact ratings of 70 resource concerns that may have resulted from the installation of NRCS-approved conservation practices.

- **Resource Conservationist** that led development of NRCS Administrative Records for wetland determinations appealed to the National Appeals Division (NAD). Advised NRCS Appeals Specialist on technical findings and strategy to persuade hearing officers of the credibility of NRCS wetland determinations. Provided written and oral testimony as a technical expert for NRCS at NAD hearings. Analyzed and rebutted testimony of appellants and appellants’ consultants, as appropriate. When NAD determinations were adverse to the NRCS, he identified the errors in the hearing officer’s findings and conclusions, and developed a fact-based request for NAD Director’s Review, when feasible.

- **Plant Ecologist** on the NRCS 4-person Northern Prairie Pothole Wetland Technical Team, created in 1995 to assist the agency in implementation of the Food Security Act and NRCS wetland conservation policy.

- **Plant Ecologist** that collected data on reference wetlands in Montana, North Dakota, Minnesota, and South Dakota for the HGM Model for the Northern Prairie (low permeability substrate) Potholes. Identified and quantified plant species composition. Assisted with the hydrology data collection. Examined pothole wetlands in these four states and tested the model to determine if the model fit the wetlands, or if a modified model was needed to fit local wetland characteristics. Provided training to NRCS employees and other agency personnel on application of the Model.

- **Plant Ecologist** that collected data on reference wetlands in North Dakota and South Dakota and participated in development of the Depressional, Endosaturated, Highly Permeable Substrate (Lake Dakota Sand Plain) Wetlands Interim HGM Model. The tasks included identification of wetland functions and model variables, development of incremental measures of the variables, and development of formulas based on the model variables to measure and quantify and quality of wetland functions. Provided training to NRCS employees and agency partners on application of the model.

- **Plant Ecologist** that collected data on reference wetlands in Nebraska and participated in drafting an interim HGM Model for the Nebraska Sand Hills. Provided training to NRCS employees and agency partners on application of the model.

- **Plant Ecologist** that conferred with the Northern Prairie Wildlife Research Center and North Dakota State University Soil Science Department for information regarding wetland characteristics and functions to be applied to developing and improving HGM models.

- **Plant Ecologist** that conducted a review of NRCS’ off-site wetland mapping conventions developed by five States (Iowa, Minnesota, Montana, North Dakota, and South Dakota). The project involved applying each State’s mapping conventions to hundreds of wetlands in each State to determine if there were significant differences in their ability to accurately identify wetlands and wetland conversions.



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- **Plant Ecologist** that facilitated and assisted with the plant identification course for NRCS and partner agency employees.
- **NRCS Northern Plains Region Team Leader** that developed environmental compliance training for NRCS employees from 1999 to 2000, including the Clean Water Act, Endangered Species Act, National Environmental Policy Act, National Historic Preservation Act, and Executive Order 11990 (no net loss of wetlands). Served on the NRCS Northern Plains Region Team that developed riparian and stream habitat management training for NRCS employees.
- **NRCS District Conservationist** that inventoried pastures and native range for farmers and ranchers and developed grazing management systems on more than 30,000 acres of grazing land.
- **NRCS District Conservationist** that planned/assisted installation of tame pasture and native range plantings on more than 10,000 acres. Planned the first NRCS Range Plantings in North Dakota that included forb species. Planned more than 60,000 acres of Conservation Reserve Program plantings.
- **NRCS District Conservationist** that collected seed or root plugs of twelve native species (grass, sedge, forb and tree) for evaluation/propagation by the NRCS Plant Materials Center in Bismark, ND. Planned and installed a warm-season grass planting between tree rows that led to a change in NRCS tree planting specifications that allows non-competitive grass planting for erosion control and wildlife habitat. Planned and installed two two blow-out reclamation plantings with various combinations of mulch, seed, and sod plugs. Conducted annual evaluations of Plant Materials Field Evaluation Plantings of grass, forb, shrub, and tree species (average of four plantings per year for six years). Planned and installed four trial plantings of trees utilizing plastic tube tree shelters. Installed a successful tree planting utilizing acorns rather than the traditional bare-root or containerized tree stock.

EMPLOYMENT EXPERIENCE

- WPC, Inc., Senior Botanist/Natural Resource Specialist, Current
- USDA-NRCS, Resource Conservationist, 2001 - 2014
- USDA-NRCS, Plant Ecologist, 1995 - 2000
- USDA-SCS/NRCS, District Conservationist, 1980 - 1995
- USDA-SCS, Soil Conservationist, 1978 - 1980

EDUCATION AND CERTIFICATIONS

- North Dakota State University, B.S., Biological and Agricultural Sciences
- Conservation Planner - Level III NRCS Certification
- NRCS Job Approval Authority for Wetland Identification for the Food Security Act
- NRCS Job Approval Authority for Application of HGM Models for low permeability potholes, sand plain depressional potholes, and low-permeability wetlands

SPECIALIZED TRAINING

- Wetland Delineation Workshop, NDDOT, USDA-NRCS, USACE Sponsored, 2014
- BNSF Contractor Orientation Safety Training, 2014
- OSHA 501 10-Hour Training, current
- OSHA 1910.120 HAZWOPER 8-Hour Training, current
- Basic Ecological Principles
- Water Quality Training Modules
- Windbreak Technology
- Cultural Resources Training



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- Conservation Planning on Rangelands
- Work and training detail - NRCS Bismarck Plant Materials Center
- Business of Crop Residue Management
- Economics of Soil and Water Conservation
- Wetland Restoration
- Plant Identification - Grasses, Sedges, Rushes, and Composites
- Endangered Species Act Training
- NEPA Training
- Annual Ethics and Conduct Training, Computer Security Training

AWARDS, HONORS, AND AFFILIATIONS

- Soil and Water Conservation Society Commendation Award
- NRCS Awards for Volunteer Programs, Promotion of Plant Materials Program
- North Dakota Chapter of the Soil and Water Conservation Society, Member



**Exhibit C to Comments of
Casey and Julie Voigt**









Photo 0028 First field stop of tour, Oats cover crop on reclaimed field planted in spring of 2019 was very irregular in plant vigor. The reason was not apparent. Very vigorous oat plants were growing in areas of weak oat plants. View ~ west.



Photo 0029 First field. A water erosion rill cut is visible across the lower third of the image. View ~ north. Irregular growth of oat cover crop is apparent.



Photo 0030 First field, view ~ southeast.



Photo 0031 First field, western part. Photo taken at boundary of two different seeding periods. The oat cover crop on right is bearing seed; oat cover crop at left did not head out.



Photo 0032 First field, view ~ north-northeast. The oat cover crop varied greatly in vigor. Oat plants were only growing in one set of drill rows, indicating the difference was not due to different seeding dates. Both the low-vigor plants and the high-vigor plants bore seeds.



Photo 0033 Photo was taken west of the immature oat cover crop visible in Photo 0031. The flat, graded surface was SPGM subsoil. Rough-looking area in upper left corner is overburden. View north.



Photo 0034 Photo was taken in the same area as # 0033, but further west on the graded SPGM subsoil. Overburden is at right. View south.



Photo 0035 Photo was taken in the same area as # 0034, at SPGM subsoil toe-slope. Overburden is at left. View north.



Photo 0036 Another water erosion rill in the first field. Irregular cover crop vigor apparent in background – patches and individual plants. View ~ west.



Photo 0037 Bruce Johnson? Looking at a water erosion rill slightly north of the rill in # 0036. Irregular cover crop vigor is again apparent. View ~ west.



Photo 0038 Close-up photo of oat plants with strongly contrasting vigor. There was only one set of drill rows. Both the low-vigor plants and the high-vigor plants bore seeds.



Photo 0039 Low-vigor oat plant had a much smaller root ball than the high-vigor oat plant. Samples were from the first field on the tour.



Photo 0040 The plants on the ground are the same two plants shown in Photo 0039.



Photo 0041 There was a strip in the field oriented ~ east-west that had noticeably lower vigor than adjacent areas. A few robust plants were scattered within the strip, but almost no patches of high vigor oat plants.



Photo 0042 A draw or water course had some cover crop growth on the overburden surface. Some water erosion had occurred. Precipitation during September was much above average. View ~ west.



Photos 1050 and 1051 Volunteer growth on the second field. Don ? said it was mulched in the fall of 2018 and weeds were clipped in 2019. Don ? said the field was supposed to be sprayed for weed control this fall but the contractor had not showed up yet.



Photo 1051. The predominant species on the field were Russian thistle (*Salsola sp.*), sweetclover (*Melilotus officinalis*) and pigeongrass (*Setaria sp.*). Bushy knotweed (*Polygonum ramosissimum*) was also common.



Photo 1053. Barnyard grass (*Echinochloa sp.*) was abundant on part of the field. Some Kentucky bluegrass plants and a few native forb and grass plants, dandelions, thistles, and common cocklebur were also noted.



Photo 1052. Photo of a thistle plant (possibly musk thistle) on the second field.

The weed seed bank produced on the second field in 2019 is undoubtedly immense and would pose severe competition to a grass seeding attempt in 2020 and perhaps later years, too. It would have been far more preferable to plant a benign cover crop such as oats to suppress weeds and then utilize herbicide control to prevent the weed seed production. WPC recommends at least two years of cover crop plantings and weed control with herbicides to reduce the weed seed bank prior to attempting the permanent grass seeding.

An early-spring cover crop of glyphosate-tolerant canola in 2020 could create macropores in the soil and allow broad-spectrum weed control. The canola cover crop could be terminated with another herbicide in the summer before seed matures and allow a second cover crop such as winter wheat to be planted in late summer or early fall. The winter wheat could be terminated with a broad-spectrum herbicide in the boot stage in 2021, followed by another cover crop planted for weed suppression, erosion control and soil structure improvement.
