

SENATE
STATE OF MINNESOTA
EIGHTY-NINTH SESSION

S.F. No. 2963

(SENATE AUTHORS: DZIEDZIC, Tomassoni, Hoffman, Dahms and Westrom)

DATE	D-PG	OFFICIAL STATUS
03/17/2016	5122	Introduction and first reading Referred to Finance
04/28/2016		Comm report: To pass as amended Second reading

1.1 A bill for an act
 1.2 relating to natural resources; appropriating money from environment and natural
 1.3 resources trust fund; adding requirements for use of trust fund money; proposing
 1.4 coding for new law in Minnesota Statutes, chapter 116P.

1.5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.6 Section 1. APPROPRIATIONS.

1.7 The sums shown in the columns marked "Appropriations" are appropriated to the
 1.8 agencies and for the purposes specified in this act. The appropriations are from the
 1.9 environment and natural resources trust fund, or another named fund, and are available for
 1.10 the fiscal years indicated for each purpose. The figures "2016" and "2017" used in this act
 1.11 mean that the appropriations listed under them are available for the fiscal year ending June
 1.12 30, 2016, or June 30, 2017, respectively. "The first year" is fiscal year 2016. "The second
 1.13 year" is fiscal year 2017. "The biennium" is fiscal years 2016 and 2017.

	<u>APPROPRIATIONS</u>	
	<u>Available for the Year</u>	
	<u>Ending June 30</u>	
	<u>2016</u>	<u>2017</u>

1.18 Sec. 2. MINNESOTA RESOURCES

1.19	<u>Subdivision 1. Total Appropriation</u>	<u>\$</u>	<u>-0-</u>	<u>\$</u>	<u>46,337,000</u>
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	<u>Appropriations by Fund</u>		
	<u>2016</u>	<u>2017</u>	
1.22	<u>Environment and</u>		
1.23	<u>natural resources</u>		
1.24	<u>trust fund</u>	<u>-0-</u>	<u>46,337,000</u>

2.1 The amounts that may be spent for each
 2.2 purpose are specified in the following
 2.3 subdivisions. Appropriations are available
 2.4 for two years beginning July 1, 2016, unless
 2.5 otherwise stated in the appropriation. Any
 2.6 unencumbered balance remaining in the
 2.7 first year does not cancel and is available
 2.8 for the second year or until the end of the
 2.9 appropriation.

2.10 **Subd. 2. Definition.**

2.11 "Trust fund" means the Minnesota
 2.12 environment and natural resources trust fund
 2.13 established under Minnesota Constitution,
 2.14 article XI, section 14.

2.15 **Subd. 3. Foundational Natural Resource Data**
 2.16 **and Information**

-0-

8,328,000

2.17 **(a) Data-Driven Pollinator Conservation**
 2.18 **Strategies**

2.19 \$520,000 the second year is from the trust
 2.20 fund to the Board of Regents of the University
 2.21 of Minnesota to improve understanding of the
 2.22 relationships and interactions between native
 2.23 bee pollinators and rare and declining plant
 2.24 species and to determine optimal placement
 2.25 and species plantings for pollinator habitat
 2.26 in order to develop guidelines for planning,
 2.27 designing, and planting pollinator habitat.

2.28 This appropriation is available until June
 2.29 30, 2019, by which time the project must be
 2.30 completed and final products delivered.

2.31 **(b) Native Bee Surveys in Minnesota Prairie**
 2.32 **and Forest Habitats**

2.33 \$600,000 the second year is from the trust
 2.34 fund to the commissioner of natural resources
 2.35 to continue to assess the current status and

3.1 distribution of native bee pollinators in
3.2 Minnesota by expanding surveys into the
3.3 prairie-forest border region and facilitating
3.4 interagency collaboration and public
3.5 outreach on pollinators. This appropriation
3.6 is available until June 30, 2019, by which
3.7 time the project must be completed and final
3.8 products delivered.

3.9 **(c) Prairie Butterfly Conservation, Research,**
3.10 **and Breeding - Phase II**

3.11 \$750,000 the second year is from the trust
3.12 fund. Of this amount, \$421,000 is to the
3.13 Minnesota Zoological Garden and \$329,000
3.14 is to the commissioner of natural resources in
3.15 collaboration with the United States Fish and
3.16 Wildlife Service to continue efforts to prevent
3.17 the extinction of imperiled native Minnesota
3.18 butterfly species through breeding, research,
3.19 field surveys, and potential reintroduction.
3.20 This appropriation is available until June
3.21 30, 2019, by which time the project must be
3.22 completed and final products delivered.

3.23 **(d) Statewide Monitoring Network for**
3.24 **Changing Habitats in Minnesota**

3.25 \$500,000 the second year is from the
3.26 trust fund to the commissioner of natural
3.27 resources to develop a consolidated statewide
3.28 network of permanent habitat monitoring
3.29 sites in prairies, forests, and wetlands to
3.30 help guide and prioritize habitat protection
3.31 and management decisions in response to
3.32 environmental change. The design and
3.33 testing methodologies of monitoring plots
3.34 must address the status of pollinators and
3.35 pollination. This appropriation is available
3.36 until June 30, 2019, by which time the

4.1 project must be completed and final products
4.2 delivered.

4.3 **(e) Completing National Wetland Inventory**
4.4 **Update for Minnesota**

4.5 \$1,500,000 the second year is from the trust
4.6 fund to the commissioner of natural resources
4.7 to complete the update and enhancement
4.8 of wetland inventory maps for counties in
4.9 central and northwestern Minnesota. This
4.10 appropriation is available until June 30,
4.11 2019, by which time the project must be
4.12 completed and final products delivered.

4.13 **(f) Minnesota Vegetative Buffer Assessment**
4.14 **and Prioritization to Protect Water Quality**

4.15 \$170,000 the second year is from the
4.16 trust fund to the Board of Regents of
4.17 the University of Minnesota to develop
4.18 a geographic information system (GIS)
4.19 assessment of riparian vegetative buffers
4.20 in 70 agricultural counties in Minnesota
4.21 using aerial imagery and light detection and
4.22 ranging (LiDAR) terrain analysis in order to
4.23 protect water quality.

4.24 **(g) Assessment Tool for Understanding**
4.25 **Vegetation Growth Impacts on Groundwater**
4.26 **Recharge**

4.27 \$212,000 the second year is from the
4.28 trust fund to the Board of Regents of the
4.29 University of Minnesota to develop a
4.30 statewide assessment tool to help understand
4.31 the relationship between vegetation growth
4.32 and impacts on groundwater recharge
4.33 under changing land use and climate. This
4.34 appropriation is available until June 30,
4.35 2019, by which time the project must be
4.36 completed and final products delivered.

5.1 **(h) Sentinel Lakes Monitoring and Data**
5.2 **Synthesis – Phase III**

5.3 \$401,000 the second year is from the trust
5.4 fund to the commissioner of natural resources
5.5 for the third and final phase of a monitoring
5.6 and multidisciplinary research effort on
5.7 25 sentinel lakes in Minnesota, which will
5.8 integrate and synthesize previously collected
5.9 data to enhance understanding of how
5.10 lakes respond to large-scale environmental
5.11 stressors and provide for improved ability
5.12 to predict and respond to lake changes
5.13 for water and fisheries management. This
5.14 appropriation is available until June 30,
5.15 2019, by which time the project must be
5.16 completed and final products delivered.

5.17 **(i) State Spring Inventory for Resource**
5.18 **Management and Protection - Phase II**

5.19 \$370,000 the second year is from the trust
5.20 fund to the commissioner of natural resources
5.21 to continue a systematic inventory of springs
5.22 statewide to provide fundamental data
5.23 needed to maintain spring flows and protect
5.24 groundwater-dependent resources. Increased
5.25 outreach to the public and other entities must
5.26 be conducted to assist in the identification,
5.27 documentation, and publication of spring
5.28 locations. This appropriation is available
5.29 until June 30, 2019, by which time the
5.30 project must be completed and final products
5.31 delivered.

5.32 **(j) Enhancing Understanding of Minnesota**
5.33 **River Aquatic Ecosystem**

5.34 \$500,000 the second year is from the trust
5.35 fund to the commissioner of natural resources
5.36 to accelerate collection of baseline data to

6.1 enhance understanding of the Minnesota
6.2 River ecosystem, measure future impacts
6.3 of changing climate and landscapes on
6.4 the aquatic ecosystem, and guide future
6.5 management efforts. This appropriation
6.6 is available until June 30, 2019, by which
6.7 time the project must be completed and final
6.8 products delivered.

6.9 **(k) Improving Brook Trout Stream Habitat**
6.10 **Through Beaver Management**

6.11 \$225,000 the second year is from the
6.12 trust fund to the Board of Trustees of the
6.13 Minnesota State Colleges and Universities
6.14 system for Bemidji State University to
6.15 quantify how beaver activity influences
6.16 habitat quality in streams for brook trout in
6.17 northeastern Minnesota in order to improve
6.18 current and future management practices.
6.19 This appropriation is available until June
6.20 30, 2019, by which time the project must be
6.21 completed and final products delivered.

6.22 **(l) Evaluate Temperature, Streamflow, and**
6.23 **Hydrogeology Impact on Brook Trout Habitat**

6.24 \$115,000 the second year is from the
6.25 trust fund to the Board of Regents of the
6.26 University of Minnesota for the Minnesota
6.27 Geological Survey to evaluate links between
6.28 southeastern Minnesota stream temperatures,
6.29 trout habitat, and bedrock hydrogeology to
6.30 improve trout stream management. This
6.31 appropriation is available until June 30,
6.32 2019, by which time the project must be
6.33 completed and final products delivered.

6.34 **(m) Restoration of Elk to Northeastern**
6.35 **Minnesota**

7.1 \$300,000 the second year is from the
 7.2 trust fund to the Board of Regents of the
 7.3 University of Minnesota in cooperation with
 7.4 the Fond du Lac Band and Rocky Mountain
 7.5 Elk Foundation to determine the habitat
 7.6 suitability and levels of public support for
 7.7 restoring elk to northeastern Minnesota.

7.8 This appropriation is available until June
 7.9 30, 2019, by which time the project must be
 7.10 completed and final products delivered.

7.11 **(n) Game and Nongame Bird Pesticide**
 7.12 **Exposure**

7.13 \$349,000 the second year is from the trust
 7.14 fund to the Board of Regents of the University
 7.15 of Minnesota to evaluate the potential risk
 7.16 to game and nongame birds from exposure
 7.17 to neonicotinoid-treated agricultural seeds.

7.18 This appropriation is available until June
 7.19 30, 2019, by which time the project must be
 7.20 completed and final products delivered.

7.21 **(o) Evaluating Insecticide Exposure Risk for**
 7.22 **Grassland Wildlife on Public Lands**

7.23 \$250,000 the second year is from the trust
 7.24 fund to the commissioner of natural resources
 7.25 to evaluate exposure risks of grassland
 7.26 wildlife to soybean aphid insecticides, to
 7.27 guide grassland management in farmland
 7.28 regions of Minnesota for the protection of
 7.29 birds, beneficial insects, and other grassland
 7.30 wildlife. This appropriation is available until
 7.31 June 30, 2019, by which time the project must
 7.32 be completed and final products delivered.

7.33 **(p) Development of Innovative Cost-Saving**
 7.34 **Methodology for Forest Inventory**

7.35 \$1,000,000 the second year is from the
 7.36 trust fund to the commissioner of natural

8.1 resources to develop and pilot a new and more
8.2 cost-effective methodology for an enhanced
8.3 stand-based forest inventory, with the goal
8.4 of extending the methodology statewide.

8.5 This appropriation is available until June
8.6 30, 2019, by which time the project must be
8.7 completed and final products delivered.

8.8 **(q) Evaluation of Tree Retention Guidelines**
8.9 **Pertaining to Wildlife**

8.10 \$232,000 the second year is from the
8.11 trust fund to the Board of Regents of the
8.12 University of Minnesota for the Natural
8.13 Resources Research Institute in Duluth to
8.14 assess the effectiveness of the Minnesota
8.15 Forest Resources Council tree retention
8.16 guidelines in sustaining Minnesota's wildlife
8.17 populations, by quantifying and evaluating
8.18 the impacts on birds, small mammals, and
8.19 amphibian diversity. This appropriation
8.20 is available until June 30, 2019, by which
8.21 time the project must be completed and final
8.22 products delivered.

8.23 **(r) Determine Impacts on Wildlife From**
8.24 **Emerald Ash Borer Infection of Black Ash**
8.25 **Forests**

8.26 \$334,000 the second year is from the
8.27 trust fund to the Board of Regents of the
8.28 University of Minnesota for the Natural
8.29 Resources Research Institute in Duluth
8.30 to assess impacts of emerald ash borer
8.31 and adaptive management on wildlife
8.32 diversity in black ash forests and to develop
8.33 recommendations to mitigate wildlife
8.34 impacts. This appropriation is available until
8.35 June 30, 2019, by which time the project must
8.36 be completed and final products delivered.

9.1	<u>Subd. 4. Water Resources</u>	<u>-0-</u>	<u>8,349,000</u>
9.2	<u>(a) Tracking and Preventing Harmful Algal</u>		
9.3	<u>Blooms</u>		
9.4	<u>\$500,000 the second year is from the trust</u>		
9.5	<u>fund to the Science Museum of Minnesota</u>		
9.6	<u>for the St. Croix Watershed Research Station</u>		
9.7	<u>to identify species composition and timing of</u>		
9.8	<u>harmful algal blooms, understand the causes</u>		
9.9	<u>of bloom development in individual lakes,</u>		
9.10	<u>and determine how nutrients and climate</u>		
9.11	<u>interact to increase harmful algae outbreaks.</u>		
9.12	<u>This work must be done in cooperation</u>		
9.13	<u>with the University of Minnesota and the</u>		
9.14	<u>Minnesota Pollution Control Agency. This</u>		
9.15	<u>appropriation is available until June 30,</u>		
9.16	<u>2019, by which time the project must be</u>		
9.17	<u>completed and final products delivered.</u>		
9.18	<u>(b) Assessing the Increasing Harmful Algal</u>		
9.19	<u>Blooms in Minnesota Lakes</u>		
9.20	<u>\$270,000 the second year is from the trust</u>		
9.21	<u>fund to the Board of Regents of the University</u>		
9.22	<u>of Minnesota for the Saint Anthony Falls</u>		
9.23	<u>Laboratory to investigate lake processes</u>		
9.24	<u>and meteorological conditions triggering</u>		
9.25	<u>algal blooms and toxin production, develop</u>		
9.26	<u>models for tracking blooms, and provide</u>		
9.27	<u>outreach on the prediction, detection, and</u>		
9.28	<u>impacts of mitigation of algal bloom events.</u>		
9.29	<u>This work must be done in cooperation with</u>		
9.30	<u>the St. Croix Watershed Research Station</u>		
9.31	<u>of the Science Museum of Minnesota and</u>		
9.32	<u>the Minnesota Pollution Control Agency.</u>		
9.33	<u>This appropriation is available until June</u>		
9.34	<u>30, 2019, by which time the project must be</u>		
9.35	<u>completed and final products delivered.</u>		

10.1 **(c) Restoring Native Mussels in Streams and**
10.2 **Lakes**

10.3 \$600,000 the second year is from the
10.4 trust fund to the commissioner of natural
10.5 resources in cooperation with the Minnesota
10.6 Zoological Garden for a statewide mussel
10.7 program to rear, restore, and re-establish
10.8 native mussel species in streams and rivers.

10.9 This appropriation is available until June
10.10 30, 2019, by which time the project must be
10.11 completed and final products delivered.

10.12 **(d) Assessing Techniques for Eliminating**
10.13 **Contaminants to Protect Native Fish and**
10.14 **Mussels**

10.15 \$287,000 the second year is from the
10.16 trust fund to the commissioner of natural
10.17 resources for an agreement with the
10.18 University of St. Thomas to evaluate the
10.19 use of ultraviolet treatment of wastewater
10.20 to remove certain commonly detected
10.21 wastewater contaminants, in order to reduce
10.22 the contaminants' toxicity to native fish and
10.23 mussels. This appropriation is available until
10.24 June 30, 2019, by which time the project must
10.25 be completed and final products delivered.

10.26 **(e) Assessing Neonicotinoid Insecticide Effects**
10.27 **on Aquatic and Soil Communities**

10.28 \$400,000 the second year is from the trust
10.29 fund to the Board of Regents of the University
10.30 of Minnesota to identify neonicotinoid
10.31 insecticide breakdown components produced
10.32 in water and plant leaves and assess their
10.33 toxicity to soil and aquatic species and related
10.34 biotic communities. This appropriation is
10.35 available until June 30, 2019, by which time

11.1 the project must be completed and final
 11.2 products delivered.

11.3 **(f) Bacterial Assessment of Groundwater**
 11.4 **Supplies Used for Drinking Water**

11.5 \$299,000 the second year is from the
 11.6 trust fund to the Board of Regents of the
 11.7 University of Minnesota to characterize and
 11.8 analyze bacterial communities in Minnesota
 11.9 groundwater used as drinking water supplies
 11.10 and link the microbiological data to other
 11.11 water quality indicators for drinking water
 11.12 supply safety. This appropriation is available
 11.13 until June 30, 2019, by which time the
 11.14 project must be completed and final products
 11.15 delivered.

11.16 **(g) Understanding Bedrock Fracture Flow to**
 11.17 **Improve Groundwater Quality**

11.18 \$183,000 the second year is from the
 11.19 trust fund to the Board of Regents of the
 11.20 University of Minnesota for the Minnesota
 11.21 Geological Survey to use new techniques of
 11.22 borehole testing and rock fracture mapping in
 11.23 the Twin Cities metropolitan area to achieve
 11.24 a better understanding of groundwater
 11.25 flow through fractured bedrock, in order to
 11.26 improve groundwater management. This
 11.27 appropriation is available until June 30,
 11.28 2019, by which time the project must be
 11.29 completed and final products delivered.

11.30 **(h) Protection of State's Confined Drinking**
 11.31 **Water Aquifers - Phase II**

11.32 \$433,000 the second year is from the
 11.33 trust fund to the commissioner of natural
 11.34 resources for an agreement with the United
 11.35 States Geological Survey to continue to test
 11.36 methods of defining properties of confined

12.1 drinking water aquifers, in order to improve
12.2 water management. This appropriation is
12.3 not subject to Minnesota Statutes, section
12.4 116P.10. This appropriation is available until
12.5 June 30, 2019, by which time the project must
12.6 be completed and final products delivered.

12.7 **(i) Techniques for Water Storage Estimates in**
12.8 **Central Minnesota**

12.9 \$250,000 the second year is from the
12.10 trust fund to the Board of Regents of the
12.11 University of Minnesota to improve water
12.12 storage estimates in groundwater, soil
12.13 moisture, streams, lakes, and wetlands
12.14 through integration of satellite monitoring
12.15 and ground-based measurements in central
12.16 Minnesota. This appropriation is available
12.17 until June 30, 2019, by which time the
12.18 project must be completed and final products
12.19 delivered.

12.20 **(j) Assessment of Surface Water Quality with**
12.21 **Satellite Sensors**

12.22 \$345,000 the second year is from the trust
12.23 fund to the Board of Regents of the University
12.24 of Minnesota for a statewide assessment of
12.25 water quality using new satellite sensors
12.26 for high frequency measurement of major
12.27 water quality indicators in lakes and rivers.
12.28 This appropriation is available until June
12.29 30, 2019, by which time the project must be
12.30 completed and final products delivered.

12.31 **(k) Development of Innovative Sensor**
12.32 **Technologies for Water Monitoring**

12.33 \$509,000 the second year is from the
12.34 trust fund to the Board of Regents of
12.35 the University of Minnesota to develop
12.36 inexpensive and efficient sensitive sensors

13.1 and wireless sensor networks for continuous
 13.2 monitoring of contaminants in lakes and
 13.3 ivers in Minnesota. This appropriation
 13.4 is subject to Minnesota Statutes, section
 13.5 116P.10. This appropriation is available until
 13.6 June 30, 2019, by which time the project must
 13.7 be completed and final products delivered.

13.8 **(l) Wastewater Treatment Process**
 13.9 **Improvements**

13.10 \$398,000 the second year is from the trust
 13.11 fund to the Board of Regents of the University
 13.12 of Minnesota to characterize and quantify
 13.13 the nutrient-removing microorganisms used
 13.14 for municipal wastewater treatment, in order
 13.15 to improve the process used to reduce total
 13.16 nitrogen discharge. This appropriation is
 13.17 available until June 30, 2019, by which time
 13.18 the project must be completed and final
 13.19 products delivered.

13.20 **(m) Membrane-Based Process for**
 13.21 **Decentralized Drinking Water Production**

13.22 \$191,000 the second year is from the trust
 13.23 fund to the Board of Regents of the University
 13.24 of Minnesota to develop a low-energy use,
 13.25 membrane-based treatment technology
 13.26 to produce drinking water locally from
 13.27 surface waters by removing heavy metals
 13.28 and contaminants of emerging concern,
 13.29 including pesticides and pharmaceuticals.
 13.30 This appropriation is subject to Minnesota
 13.31 Statutes, section 116P.10. This appropriation
 13.32 is available until June 30, 2019, by which
 13.33 time the project must be completed and final
 13.34 products delivered.

13.35 **(n) Analyzing Alternatives for Municipal**
 13.36 **Wastewater Treatment**

14.1 \$180,000 the second year is from the trust
14.2 fund to the commissioner of the Minnesota
14.3 Pollution Control Agency to analyze
14.4 alternatives for improved treatment of
14.5 sulfate and salty parameters at municipal
14.6 wastewater plants to inform the development
14.7 and implementation of wild rice, sulfate,
14.8 and other water quality standards. This
14.9 appropriation is available until June 30,
14.10 2019, by which time the project must be
14.11 completed and final products delivered.

14.12 **(o) Understanding Impacts of Salt Usage on**
14.13 **Minnesota Lakes, Rivers, and Groundwater**

14.14 \$497,000 the second year is from the
14.15 trust fund to the Board of Regents of
14.16 the University of Minnesota to quantify
14.17 the current water-softening salt loads in
14.18 Minnesota lakes, rivers, and groundwater,
14.19 assess alternative water-softening materials
14.20 and methods, and quantify the transport of
14.21 de-icing and water-softening salt through the
14.22 soil. This appropriation is available until
14.23 June 30, 2019, by which time the project must
14.24 be completed and final products delivered.

14.25 **(p) Microbes for Salt and Metal Removal**

14.26 \$596,000 the second year is from the
14.27 trust fund to the Board of Regents of the
14.28 University of Minnesota to continue to
14.29 research the potential of recently discovered
14.30 microbes from Soudan Iron Mine in
14.31 northern Minnesota for removing salts and
14.32 metals from groundwater and surface water
14.33 resources. This appropriation is subject to
14.34 Minnesota Statutes, section 116P.10. This
14.35 appropriation is available until June 30,

15.1 2019, by which time the project must be
15.2 completed and final products delivered.

15.3 **(q) Engineered Biofilter for Sulfate and Metal**
15.4 **Removal from Mine Waters**

15.5 \$440,000 the second year is from the
15.6 trust fund to the Board of Regents of
15.7 the University of Minnesota to develop
15.8 an efficient, low-cost, biomass-derived
15.9 adsorbent material for use in bioactive filters
15.10 able to remove sulfate and metals from
15.11 mining-impacted waters. This appropriation
15.12 is subject to Minnesota Statutes, section
15.13 116P.10. This appropriation is available until
15.14 June 30, 2019, by which time the project must
15.15 be completed and final products delivered.

15.16 **(r) Developing Biosponge Technology for**
15.17 **Removal of Nitrates from Minnesota Waters**

15.18 \$198,000 the second year is from the
15.19 trust fund to the Board of Regents of the
15.20 University of Minnesota to adapt and test
15.21 an inexpensive biosponge technology for
15.22 its effectiveness at removing nitrates from
15.23 drinking water. This appropriation is subject
15.24 to Minnesota Statutes, section 116P.10. This
15.25 appropriation is available until June 30,
15.26 2019, by which time the project must be
15.27 completed and final products delivered.

15.28 **(s) Morrison County Performance Drainage**
15.29 **and Hydrology Management**

15.30 \$209,000 the second year is from the trust
15.31 fund to the commissioner of natural resources
15.32 for an agreement with the Morrison Soil
15.33 and Water Conservation District to conduct
15.34 an assessment of drainage infrastructure,
15.35 in order to develop hydrology restoration
15.36 priorities and a countywide performance

16.1 drainage ordinance to address land
16.2 use-change impacts to the hydrogeology.
16.3 This appropriation is available until June
16.4 30, 2019, by which time the project must be
16.5 completed and final products delivered.

16.6 **(t) Agricultural and Urban Runoff Water**
16.7 **Quality Treatment Analysis - Phase II**

16.8 \$110,000 the second year is from the
16.9 trust fund to the Board of Water and Soil
16.10 Resources for an agreement with the Blue
16.11 Earth County Drainage Authority to continue
16.12 monitoring a model demonstration for
16.13 storage and treatment options in drainage
16.14 systems designed to improve agricultural and
16.15 urban water quality by reducing soil erosion,
16.16 peak water flows, and nutrient loading. This
16.17 appropriation is available until June 30,
16.18 2021, by which time the project must be
16.19 completed and final products delivered.

16.20 **(u) Surface Water Bacterial Treatment System**
16.21 **Pilot Project**

16.22 \$500,000 the second year is from the trust
16.23 fund to the commissioner of natural resources
16.24 for an agreement with Vadnais Lake Area
16.25 Water Management Organization to reduce
16.26 bacteria and nutrient loads to Vadnais
16.27 Lake, a drinking water supply reservoir,
16.28 through implementation and evaluation
16.29 of a subsurface constructed wetland as a
16.30 best management practice for potential
16.31 statewide use. The Vadnais Lake Area Water
16.32 Management Organization must consider
16.33 contracting with the University of Minnesota
16.34 Department of Civil, Environmental,
16.35 and Geo-Engineering to evaluate the
16.36 effectiveness of the pilot treatment system

17.1 so that it maximizes benefits and can be
17.2 replicated elsewhere. This appropriation
17.3 is available until June 30, 2021, by which
17.4 time the project must be completed and final
17.5 products delivered.

17.6 **(v) Assessing Effectiveness of Wetland**
17.7 **Restorations for Improved Water Quality**

17.8 \$420,000 the second year is from the trust
17.9 fund to the Board of Regents of the University
17.10 of Minnesota to quantify the environmental
17.11 benefits of sediment removal and native
17.12 plant communities in wetland restorations by
17.13 measuring resulting reductions in nitrogen
17.14 and phosphorus delivery to groundwater and
17.15 surface water. This appropriation is available
17.16 until June 30, 2019, by which time the
17.17 project must be completed and final products
17.18 delivered.

17.19 **(w) Assessing Climate Change Effects on**
17.20 **Release of Mercury and Sulfur into Aquatic**
17.21 **Ecosystems**

17.22 \$300,000 the second year is from the
17.23 trust fund to the Board of Regents of the
17.24 University of Minnesota to determine the
17.25 effects of increased temperatures on the
17.26 release of mercury and sulfur from Minnesota
17.27 peatlands in order to help predict impacts
17.28 on aquatic ecosystems and fish health. This
17.29 appropriation is available until June 30,
17.30 2019, by which time the project must be
17.31 completed and final products delivered.

17.32 **(x) Integrated Targeted Watershed Planning**
17.33 **Tools with Citizen Involvement**

17.34 \$169,000 the second year is from the
17.35 trust fund to the Board of Trustees of the
17.36 Minnesota State Colleges and Universities

18.1 system for the Water Resources Center
 18.2 at Minnesota State University, Mankato,
 18.3 to use geographic information system
 18.4 (GIS) prioritization and modeling tools
 18.5 to develop pollution reduction strategies
 18.6 in five priority subwatersheds in the Le
 18.7 Sueur River watershed and to promote
 18.8 implementation of the reduction strategies
 18.9 through citizen involvement and outreach.
 18.10 This appropriation is available until June
 18.11 30, 2019, by which time the project must be
 18.12 completed and final products delivered.

18.13 **(y) Roseau Lake Watershed Targeted Water**
 18.14 **Quality Improvement**

18.15 \$65,000 the second year is from the
 18.16 trust fund to the commissioner of natural
 18.17 resources to develop targeted water quality
 18.18 improvements for the Roseau Lake watershed
 18.19 by coordinating with partner agencies to
 18.20 identify the top priority field scale best
 18.21 management and conservation practices to
 18.22 implement in the region.

18.23 **Subd. 5. Environmental Education** -0- 2,562,000

18.24 **(a) Minnesota Conservation Apprentice**
 18.25 **Academy**

18.26 \$433,000 the second year is from the
 18.27 trust fund to the Board of Water and Soil
 18.28 Resources in cooperation with Conservation
 18.29 Corps Minnesota and Iowa for the final
 18.30 phase of a program to train and mentor future
 18.31 conservation professionals by providing
 18.32 apprenticeship service opportunities with
 18.33 local soil and water conservation districts in
 18.34 Minnesota. This appropriation is available
 18.35 until June 30, 2019, by which time the

19.1 project must be completed and final products
19.2 delivered.

19.3 **(b) School Forests Outdoor Classrooms**

19.4 \$440,000 the second year is from the trust
19.5 fund to the commissioner of natural resources
19.6 in cooperation with Conservation Corps
19.7 Minnesota and Iowa to renovate and restore
19.8 60 school forests and train students, teachers,
19.9 school district facility staff, and community
19.10 volunteers to be long-term stewards of the
19.11 school forests and provide education and
19.12 service learning experiences at school forest
19.13 sites. This appropriation is available until
19.14 June 30, 2019, by which time the project must
19.15 be completed and final products delivered.

19.16 **(c) Youth-Led Sustainability Projects in 50**
19.17 **Minnesota Communities - Phase III**

19.18 \$400,000 the second year is from the
19.19 trust fund to the commissioner of natural
19.20 resources for an agreement with Prairie
19.21 Woods Environmental Learning Center to
19.22 expand the Youth Energy Summit (YES!)
19.23 program statewide to complete more than
19.24 200 new youth-led climate change mitigation
19.25 and adaptation projects in over 50 Minnesota
19.26 communities.

19.27 **(d) New Prairie Sportsman Statewide**
19.28 **Broadcast Video Project**

19.29 \$300,000 the second year is from the
19.30 trust fund to the commissioner of natural
19.31 resources for an agreement with Pioneer
19.32 Public Television to provide outreach on
19.33 outdoor recreation, conservation, and natural
19.34 resource issues, including water quality,
19.35 wildlife habitat, and invasive species,

20.1 through a series of interrelated public
20.2 forums, educational and training videos, and
20.3 statewide broadcast television programs.

20.4 This appropriation is available until June
20.5 30, 2019, by which time the project must be
20.6 completed and final products delivered.

20.7 **(e) Workshops and Outreach for Nontoxic**
20.8 **Ammunition Alternatives**

20.9 \$133,000 the second year is from the
20.10 trust fund to the Board of Regents of the
20.11 University of Minnesota for the Raptor
20.12 Center, in cooperation with the Department
20.13 of Natural Resources and other conservation
20.14 partners, to provide hunters with outreach
20.15 and workshops on alternatives to lead
20.16 hunting ammunition, including copper
20.17 ammunition as an alternative, and to promote
20.18 voluntary selection of nontoxic ammunition
20.19 in order to protect raptors and other wildlife
20.20 in Minnesota from accidental lead poisoning
20.21 caused by ingestion of ammunition fragments
20.22 left in the field.

20.23 **(f) Wildlife and Habitat Conservation**
20.24 **Education for Southwest Minnesota High**
20.25 **Schools**

20.26 \$147,000 the second year is from the trust
20.27 fund to the Minnesota Zoological Garden
20.28 to engage high school students in critical
20.29 prairie wildlife and habitat conservation
20.30 projects by using the zoo's unique animal
20.31 collections and state-of-the-art technology to
20.32 deliver hands-on learning in 12 southwestern
20.33 Minnesota high schools.

20.34 **(g) Standards-Based Dakota Indian Land**
20.35 **Stewardship Education**

21.1 \$197,000 the second year is from the trust
 21.2 fund to the commissioner of natural resources
 21.3 for an agreement with Dakota Wicohan
 21.4 to enhance the capacity of approximately
 21.5 1,250 students to be stewards of the land in
 21.6 Minnesota by learning about Dakota Indian
 21.7 values and environmental principles through
 21.8 a standards-based experiential multimedia
 21.9 curriculum. This appropriation is available
 21.10 until June 30, 2019, by which time the
 21.11 project must be completed and final products
 21.12 delivered.

21.13 **(h) Wolf Management Education in the**
 21.14 **Classroom - Phase II**

21.15 \$240,000 the second year is from the trust
 21.16 fund to the commissioner of natural resources
 21.17 for an agreement with the International
 21.18 Wolf Center to expand the Wolves at Our
 21.19 Door classroom education program to
 21.20 assist students in understanding wolves and
 21.21 associated management issues.

21.22 **(i) Master Water Steward Program Expansion**

21.23 \$116,000 the second year is from the trust
 21.24 fund to the commissioner of natural resources
 21.25 for an agreement with the Freshwater Society
 21.26 to train community volunteers as master
 21.27 water stewards who will work with
 21.28 neighborhoods to install water management
 21.29 projects that preserve and restore water
 21.30 quality. This appropriation is available until
 21.31 June 30, 2019, by which time the project must
 21.32 be completed and final products delivered.

21.33 **(j) Promoting Water Quality Stewardship**
 21.34 **through Student Mentoring and River**
 21.35 **Monitoring**

22.1 \$39,000 the second year is from the trust
 22.2 fund to the commissioner of natural resources
 22.3 for an agreement with Southwest Minnesota
 22.4 State University to partner with area schools
 22.5 to deliver inquiry-based, hands-on learning
 22.6 and mentoring on water quality stewardship
 22.7 between university agriculture students and
 22.8 high school and middle school students.

22.9 **(k) Analysis of Thermally Modified Wood**
 22.10 **Nesting Boxes for Birds**

22.11 \$117,000 the second year is from the
 22.12 trust fund to the Board of Regents of the
 22.13 University of Minnesota for the Natural
 22.14 Resources Research Institute in Duluth to
 22.15 verify the performance and market readiness
 22.16 of bird nest boxes made from thermally
 22.17 modified Minnesota ash wood, by placing the
 22.18 nest boxes in nature centers, environmental
 22.19 learning centers, and school forests statewide
 22.20 for testing, collecting pertinent bird
 22.21 conservation data, and delivering related
 22.22 environmental education.

22.23 **Subd. 6. Aquatic and Terrestrial Invasive**
 22.24 **Species**

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5,860,000

22.25 **(a) Minnesota Invasive Terrestrial Plants and**
 22.26 **Pests Center - Phase III**

22.27 \$3,750,000 the second year is from the
 22.28 trust fund to the Board of Regents of the
 22.29 University of Minnesota for the Invasive
 22.30 Terrestrial Plants and Pests Center to conduct
 22.31 research to prevent, minimize, and mitigate
 22.32 the threats and impacts posed by terrestrial
 22.33 invasive plants, pathogens, and pests to
 22.34 the state's prairies, forests, wetlands, and
 22.35 agricultural resources. This appropriation
 22.36 is available until June 30, 2023, by which

23.1 time the project must be completed and final
 23.2 products delivered.

23.3 **(b) Developing Membrane Filtration System to**
 23.4 **Treat Lake Superior Ballast Water**

23.5 \$151,000 the second year is from the trust
 23.6 fund to the Board of Regents of the University
 23.7 of Minnesota to develop a filtration system
 23.8 utilizing bioactive membrane technologies
 23.9 for use in treating Lake Superior ballast
 23.10 water to remove at least 90 percent of
 23.11 suspended pathogens, invasive species, and
 23.12 contaminants. This appropriation is subject
 23.13 to Minnesota Statutes, section 116P.10. This
 23.14 appropriation is available until June 30,
 23.15 2019, by which time the project must be
 23.16 completed and final products delivered.

23.17 **(c) Advancing Microbial Invasive Species**
 23.18 **Monitoring from Ballast Discharge**

23.19 \$368,000 the second year is from the
 23.20 trust fund to the Board of Regents of
 23.21 the University of Minnesota to identify
 23.22 bacteria in ship ballast water and St. Louis
 23.23 River estuary sediments, assess the risks
 23.24 posed by invasive bacteria, and evaluate
 23.25 treatment techniques for effectiveness at
 23.26 removing the bacteria from ballast water.
 23.27 This appropriation is available until June
 23.28 30, 2019, by which time the project must be
 23.29 completed and final products delivered.

23.30 **(d) Biological Control of White Nose Syndrome**
 23.31 **in Bats - Phase II**

23.32 \$452,000 the second year is from the
 23.33 trust fund to the Board of Regents of the
 23.34 University of Minnesota to continue research
 23.35 to identify, develop, and optimize biocontrol
 23.36 agents for white nose syndrome in bats by

24.1 evaluating the biocontrol effectiveness of
24.2 microbes collected at additional hibernacula
24.3 throughout the state and conducting baseline
24.4 characterization of the total bat microbiomes.

24.5 This appropriation is available until June
24.6 30, 2019, by which time the project must be
24.7 completed and final products delivered.

24.8 **(e) Elimination of Target Invasive Plant Species**
24.9 **- Phase II**

24.10 \$750,000 the second year is from the trust
24.11 fund. Of this amount, \$511,000 is to the
24.12 commissioner of agriculture and \$239,000
24.13 is to the Board of Regents of the University
24.14 of Minnesota to train volunteers and
24.15 professionals to find, control, and monitor
24.16 targeted newly emergent invasive plant
24.17 species. This appropriation is available until
24.18 June 30, 2019, by which time the project must
24.19 be completed and final products delivered.

24.20 **(f) Dutch Elm Disease Resistance - Phase II**

24.21 \$200,000 the second year is from the trust
24.22 fund to the Board of Regents of the University
24.23 of Minnesota to continue to identify and
24.24 evaluate native Minnesota elms that are
24.25 resistant to Dutch elm disease and begin
24.26 propagating disease-resistant specimens
24.27 for field trial testing. This appropriation
24.28 is available until June 30, 2019, by which
24.29 time the project must be completed and final
24.30 products delivered.

24.31 **(g) Invasive Carp Management Research in**
24.32 **Lake Nokomis Subwatershed**

24.33 \$189,000 the second year is from the
24.34 trust fund to the commissioner of natural
24.35 resources for an agreement with the

25.1 Minneapolis Park and Recreation Board to
 25.2 apply current invasive carp management
 25.3 research to the entire Lake Nokomis
 25.4 subwatershed and provide demonstration
 25.5 guidance for large-scale carp management.

25.6 This appropriation is available until June
 25.7 30, 2020, by which time the project must be
 25.8 completed and final products delivered.

25.9 **Subd. 7. Air Quality, Climate Change, and**
 25.10 **Renewable Energy**

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3,889,000

25.11 **(a) Solar Cells Manufacturing Research**

25.12 \$388,000 the second year is from the
 25.13 trust fund to the Board of Regents of
 25.14 the University of Minnesota to develop
 25.15 inexpensive, high-efficiency solar energy by
 25.16 simple roll-to-roll advanced manufacturing
 25.17 technology, using Perovskite, a new
 25.18 photovoltaic material. This appropriation
 25.19 is subject to Minnesota Statutes, section
 25.20 116P.10. This appropriation is available until
 25.21 June 30, 2019, by which time the project must
 25.22 be completed and final products delivered.

25.23 **(b) Community Solar Garden Installation**

25.24 \$490,000 the second year is from the trust
 25.25 fund to the commissioner of natural resources
 25.26 for an agreement with Rural Renewable
 25.27 Energy Alliance to install a 200-kilowatt
 25.28 community solar garden to provide for
 25.29 electrical distribution in Cass and Crow
 25.30 Wing Counties, to assist households in the
 25.31 Minnesota low-income housing energy
 25.32 assistance program in meeting electrical
 25.33 energy needs and serve as a model for
 25.34 low-income energy assistance elsewhere in

26.1 the state. This appropriation is not subject to
26.2 Minnesota Statutes, section 116P.10.

26.3 **(c) High-Resolution Climate Projections to Aid**
26.4 **Local Planning and Implementation Efforts**

26.5 \$411,000 the second year is from the trust
26.6 fund to the Board of Regents of the University
26.7 of Minnesota to produce statewide localized
26.8 climate model projections to be used for
26.9 long-term planning and implementation of
26.10 adaptation strategies for natural resources,
26.11 infrastructure, and human health at the local
26.12 level. This appropriation is available until
26.13 June 30, 2019, by which time the project must
26.14 be completed and final products delivered.

26.15 **(d) Geotargeted Distributed Clean Energy**
26.16 **Initiative**

26.17 \$800,000 the second year is from the trust
26.18 fund to the commissioner of natural resources
26.19 for an agreement with the Center for Energy
26.20 and Environment. Of this amount, up to
26.21 \$600,000 is for analysis of community
26.22 distributed clean energy investments as
26.23 alternatives to utility transmission and
26.24 distribution upgrade capital investments
26.25 to meet forecasted electrical loads. Up
26.26 to \$200,000 is to conduct pilot programs
26.27 using energy efficiency and other distributed
26.28 energy resources to achieve forecasted
26.29 electric energy loads in communities and
26.30 is contingent on a \$200,000 match of an
26.31 equal or greater amount of nonstate money.
26.32 This appropriation is available until June
26.33 30, 2019, by which time the project must be
26.34 completed and final products delivered.

26.35 **(e) Waste Heat Recovery with Efficient**
26.36 **Thermoelectric Energy Generators**

27.1 \$400,000 the second year is from the
27.2 trust fund to the Board of Regents of
27.3 the University of Minnesota to develop
27.4 thermoelectric energy generators using
27.5 advanced, high-performance materials able
27.6 to more efficiently capture waste heat and
27.7 transform the heat into electricity. This
27.8 appropriation is subject to Minnesota
27.9 Statutes, section 116P.10. This appropriation
27.10 is available until June 30, 2019, by which
27.11 time the project must be completed and final
27.12 products delivered.

27.13 **(f) Hydrogen Fuel from Wind-Produced**
27.14 **Renewable Ammonia**

27.15 \$400,000 the second year is from the trust
27.16 fund to the Board of Regents of the University
27.17 of Minnesota to develop a technical solution
27.18 for converting wind-produced ammonia to
27.19 hydrogen through catalytic decomposition,
27.20 for use in reducing emissions from diesel
27.21 engines and powering fuel cell vehicles.
27.22 This appropriation is subject to Minnesota
27.23 Statutes, section 116P.10. This appropriation
27.24 is available until June 30, 2019, by which
27.25 time the project must be completed and final
27.26 products delivered.

27.27 **(g) Utilization of Dairy Farm Wastewater for**
27.28 **Sustainable Production**

27.29 \$500,000 the second year is from the trust
27.30 fund to the Board of Regents of the University
27.31 of Minnesota for the West Central Research
27.32 and Outreach Center in Morris to develop and
27.33 evaluate an integrated system that recycles
27.34 and uses nutrients in dairy wastewater
27.35 from feedlots and milk processing, thereby
27.36 reducing nutrients from agricultural runoff,

28.1 and to provide outreach on adoption of new
 28.2 technologies. This appropriation is subject
 28.3 to Minnesota Statutes, section 116P.10. This
 28.4 appropriation is available until June 30,
 28.5 2019, by which time the project must be
 28.6 completed and final products delivered.

28.7 **(h) Solar Energy Utilization for Minnesota**
 28.8 **Swine Farms - Phase II**

28.9 \$500,000 the second year is from the trust
 28.10 fund to the Board of Regents of the University
 28.11 of Minnesota for the West Central Research
 28.12 and Outreach Center in Morris to continue to
 28.13 develop and evaluate the utilization of solar
 28.14 photovoltaic systems at swine facilities to
 28.15 improve energy and economic performance,
 28.16 reduce fossil fuel usage and emissions, and
 28.17 optimize water usage. This appropriation
 28.18 is available until June 30, 2019, by which
 28.19 time the project must be completed and final
 28.20 products delivered.

28.21 **Subd. 8. Methods to Protect, Restore, and**
 28.22 **Enhance Land, Water, and Habitat**

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4,515,000

28.23 **(a) Bee Pollinator Habitat Enhancement -**
 28.24 **Phase II**

28.25 \$387,000 the second year is from the trust
 28.26 fund to the Board of Regents of the University
 28.27 of Minnesota to continue assessment of the
 28.28 potential to supplement traditional turf grass
 28.29 by providing critical floral plant resources
 28.30 to enhance bee pollinator habitat. Plant
 28.31 materials and seeds must follow the Board of
 28.32 Water and Soil Resources' native vegetation
 28.33 establishment and enhancement guidelines.
 28.34 This appropriation is available until June
 28.35 30, 2019, by which time the project must be
 28.36 completed and final products delivered.

29.1 **(b) Measuring Pollen and Seed Dispersal for**
29.2 **Prairie Fragment Connectivity**

29.3 \$556,000 the second year is from the
29.4 trust fund to the Board of Regents of the
29.5 University of Minnesota to determine
29.6 habitat connectivity between prairie
29.7 fragments by measuring plant movement
29.8 by dispersal of pollen and seeds to improve
29.9 prairie restoration implementation. This
29.10 appropriation is available until June 30,
29.11 2019, by which time the project must be
29.12 completed and final products delivered.

29.13 **(c) Establishment of Permanent Habitat Strips**
29.14 **Within Row Crops**

29.15 \$179,000 the second year is from the trust
29.16 fund to the Science Museum of Minnesota
29.17 for the St. Croix Watershed Research Station
29.18 to research the viability of establishing
29.19 prairie forbs and alfalfa as permanent cover
29.20 strips in the bare soil between selected rows
29.21 of corn and soybeans as potential pollinator,
29.22 monarch, and gamebird habitat. Monitoring
29.23 of the native plant strips must evaluate the
29.24 effects of pesticides from adjacent crops on
29.25 pollinators, including determining whether
29.26 there is a reduction of pollinators that results
29.27 in reduced setting of seeds on the native
29.28 plants. This appropriation is available until
29.29 June 30, 2019, by which time the project must
29.30 be completed and final products delivered.

29.31 **(d) Evaluate Prescribed Burning Techniques to**
29.32 **Improve Habitat Management for Brushland**
29.33 **Species**

29.34 \$267,000 the second year is from the trust
29.35 fund to the Board of Regents of the University
29.36 of Minnesota to compare the effects on

30.1 brushland habitat of conducting prescribed
 30.2 burning in spring, summer, and fall to
 30.3 provide improved management guidelines
 30.4 for wildlife habitat. This appropriation is
 30.5 available until June 30, 2020, by which time
 30.6 the project must be completed and final
 30.7 products delivered.

30.8 **(e) Controlling Reed Canary Grass to**
 30.9 **Regenerate Floodplain Forest**

30.10 \$218,000 the second year is from the trust
 30.11 fund to the commissioner of natural resources
 30.12 for an agreement with the Minnesota state
 30.13 office of the National Audubon Society to
 30.14 determine the most effective regeneration
 30.15 methods for restoration of floodplain forests
 30.16 in southeast Minnesota impacted by invasive
 30.17 reed canary grass. This appropriation is
 30.18 available until June 30, 2019, by which time
 30.19 the project must be completed and final
 30.20 products delivered.

30.21 **(f) Forest Management for Mississippi River**
 30.22 **Drinking Water Protection**

30.23 \$300,000 the second year is from the trust
 30.24 fund to the commissioner of natural resources
 30.25 for an agreement with the Crow Wing Soil
 30.26 and Water Conservation District to pilot a
 30.27 water protection approach for the watershed
 30.28 through development of forest stewardship
 30.29 plans and targeted riparian forest restoration
 30.30 projects. Any expenditures from this
 30.31 appropriation spent on forest management
 30.32 plans or restoration must be for lands with
 30.33 a long-term contract commitment for forest
 30.34 conservation, and the restoration must follow
 30.35 the Board of Water and Soil Resources' native
 30.36 vegetation establishment and enhancement

31.1 guidelines. This appropriation is available
31.2 until June 30, 2019, by which time the
31.3 project must be completed and final products
31.4 delivered.

31.5 **(g) Upland, Wetland, and Shoreline Restoration**
31.6 **in Greater Metropolitan Area**

31.7 \$509,000 the second year is from the
31.8 trust fund to the commissioner of natural
31.9 resources for an agreement with Great River
31.10 Greening to restore approximately 150 acres
31.11 of forest, prairie, woodland, and wetland
31.12 and 0.15 miles of shoreline throughout
31.13 the greater Twin Cities metropolitan area,
31.14 using volunteers, and to conduct restoration
31.15 evaluation on previously restored parcels. A
31.16 list of proposed restorations and evaluations
31.17 must be provided as part of the required work
31.18 plan. Plant and seed materials must follow
31.19 the Board of Water and Soil Resources' native
31.20 vegetation establishment and enhancement
31.21 guidelines. This appropriation is available
31.22 until June 30, 2019, by which time the
31.23 project must be completed and final products
31.24 delivered.

31.25 **(h) Bluffland Restoration and Monitoring in**
31.26 **Winona**

31.27 \$99,000 the second year is from the trust fund
31.28 to the Board of Trustees of the Minnesota
31.29 State Colleges and Universities system
31.30 for Winona State University to inventory,
31.31 restore, and monitor the 40-acre Garvin
31.32 Heights Natural Area in Winona and provide
31.33 related public outreach and education. Plant
31.34 and seed materials must follow the Board of
31.35 Water and Soil Resources' native vegetation
31.36 establishment and enhancement guidelines.

32.1 This appropriation is available until June
 32.2 30, 2019, by which time the project must be
 32.3 completed and final products delivered.

32.4 **(i) Champlin Mill Pond Shoreland Restoration**

32.5 \$2,000,000 the second year is from the
 32.6 trust fund to the commissioner of natural
 32.7 resources for an agreement with the city
 32.8 of Champlin to restore the Champlin Mill
 32.9 Pond shoreline and adjacent habitat. Plant
 32.10 and seed materials must follow the Board of
 32.11 Water and Soil Resources' native vegetation
 32.12 establishment and enhancement guidelines.

32.13 This appropriation is available until June
 32.14 30, 2019, by which time the project must be
 32.15 completed and final products delivered.

32.16 **Subd. 9. Land Acquisition, Habitat, and**
 32.17 **Recreation**

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12,624,000

32.18 **(a) State Parks and Trails Land Acquisition**

32.19 \$2,445,000 the second year is from the
 32.20 trust fund to the commissioner of natural
 32.21 resources to acquire approximately 150 acres
 32.22 from willing sellers for authorized state
 32.23 trails and critical parcels within the statutory
 32.24 boundaries of state parks. Of this amount, at
 32.25 least \$445,000 must be used for state parks
 32.26 and trails along the Minnesota River. State
 32.27 park land acquired with this appropriation
 32.28 must be sufficiently improved to meet at
 32.29 least minimum management standards, as
 32.30 determined by the commissioner of natural
 32.31 resources. A list of proposed acquisitions
 32.32 must be provided as part of the required work
 32.33 plan. This appropriation is available until
 32.34 June 30, 2019, by which time the project must
 32.35 be completed and final products delivered.

33.1 **(b) Scientific and Natural Area Acquisition and**
 33.2 **Restoration**

33.3 \$4,000,000 the second year is from the
 33.4 trust fund to the commissioner of natural
 33.5 resources to acquire approximately 400
 33.6 acres of land with high-quality native plant
 33.7 communities and rare features from willing
 33.8 sellers, to be established as scientific and
 33.9 natural areas as provided in Minnesota
 33.10 Statutes, section 86A.05, subdivision 5,
 33.11 and restore and improve approximately
 33.12 750 acres of scientific and natural areas.
 33.13 Of this appropriation, at least \$1,300,000
 33.14 is designated for restoration. A list of
 33.15 proposed acquisitions and restorations must
 33.16 be provided as part of the required work
 33.17 plan. Land acquired with this appropriation
 33.18 must be sufficiently improved to meet at
 33.19 least minimum management standards, as
 33.20 determined by the commissioner of natural
 33.21 resources. This appropriation is available
 33.22 until June 30, 2019, by which time the
 33.23 project must be completed and final products
 33.24 delivered.

33.25 **(c) Minnesota Point Pine Forest Scientific and**
 33.26 **Natural Area Acquisition**

33.27 \$500,000 the second year is from the
 33.28 trust fund to the commissioner of natural
 33.29 resources in cooperation with the Duluth
 33.30 Airport Authority to acquire approximately
 33.31 ten acres as an addition to the designated
 33.32 Minnesota Point Pine Forest Scientific and
 33.33 Natural Area located along the shores of
 33.34 Lake Superior in Duluth.

33.35 **(d) Conservation Easements in Avon Hills -**
 33.36 **Phase III**

34.1 \$1,300,000 the second year is from the
34.2 trust fund to the commissioner of natural
34.3 resources for an agreement with Saint John's
34.4 University in cooperation with Minnesota
34.5 Land Trust to secure permanent conservation
34.6 easements on approximately 500 acres
34.7 of high-quality habitat in Stearns County,
34.8 prepare conservation management plans, and
34.9 provide public outreach. A list of proposed
34.10 easement acquisitions must be provided as
34.11 part of the required work plan. An entity
34.12 that acquires a conservation easement with
34.13 appropriations from the trust fund must have
34.14 a long-term stewardship plan for the easement
34.15 and a fund established for monitoring and
34.16 enforcing the agreement. Funding for the
34.17 long-term monitoring and enforcement
34.18 fund must come from nonstate sources for
34.19 easements acquired with this appropriation.
34.20 The state may enforce requirements in the
34.21 conservation easements on land acquired
34.22 with this appropriation and the conservation
34.23 easement document must state this authority
34.24 and explicitly include requirements for
34.25 water quality and quantity protection. This
34.26 appropriation is available until June 30,
34.27 2019, by which time the project must be
34.28 completed and final products delivered.

34.29 **(e) Wilder Forest Acquisition**

34.30 \$500,000 the second year is from the trust
34.31 fund to the commissioner of natural resources
34.32 for an agreement with Washington County
34.33 in cooperation with the Minnesota Food
34.34 Association to partially acquire property
34.35 in Washington County known as Wilder
34.36 Forest to be used in organic agricultural

35.1 production and habitat conservation. Any
35.2 land to be acquired must be identified in
35.3 an approved work plan, publicly owned,
35.4 and open to public use. The county must
35.5 evaluate and provide a long-term plan for
35.6 the conservation of the Wilder Forest area
35.7 to the Legislative-Citizen Commission on
35.8 Minnesota Resources before the acquisition
35.9 is completed. This appropriation must be
35.10 matched by at least an equal amount of
35.11 nonstate funds.

35.12 **(f) Lincoln Pipestone Rural Water System**
35.13 **Acquisition for Wellhead Protection**

35.14 \$1,500,000 the second year is from the
35.15 trust fund to the commissioner of natural
35.16 resources for an agreement with Lincoln
35.17 Pipestone Rural Water to acquire and
35.18 restore lands designated under an approved
35.19 wellhead protection plan. Lands acquired
35.20 with this appropriation must be from willing
35.21 sellers and be identified by the Department
35.22 of Health as targeted vulnerable lands for
35.23 wellhead protection. Lands must be restored
35.24 to permanent vegetative cover, but may be
35.25 used for recreation and renewable energy if
35.26 adequate protection of the drinking water
35.27 aquifer is provided. A list of proposed
35.28 acquisitions must be provided as part of the
35.29 required work plan. Plant and seed materials
35.30 must follow the Board of Water and Soil
35.31 Resources' native vegetation establishment
35.32 and enhancement guidelines. Income
35.33 derived from the lands acquired with funds
35.34 appropriated under this paragraph is exempt
35.35 from Minnesota Statutes, section 116P.10,
35.36 if used for additional wellhead protection as

36.1 provided under this paragraph until adequate
36.2 wellhead protection has been achieved,
36.3 as determined by the commissioner of
36.4 health. Any income earned after that must
36.5 be returned to the environment and natural
36.6 resources trust fund. This appropriation
36.7 is available until June 30, 2019, by which
36.8 time the project must be completed and final
36.9 products delivered.

36.10 **(g) Mesabi Trail Segment from Highway 135**
36.11 **to Town of Embarrass**

36.12 \$1,200,000 the second year is from the trust
36.13 fund to the commissioner of natural resources
36.14 for an agreement with the St. Louis and Lake
36.15 Counties Regional Railroad Authority for
36.16 engineering and construction of segments of
36.17 the Mesabi Trail, totaling approximately six
36.18 miles between Highway 135 and the town of
36.19 Embarrass. This appropriation is available
36.20 until June 30, 2019, by which time the
36.21 project must be completed and final products
36.22 delivered.

36.23 **(h) Tower Historic Harbor Trail Connections**

36.24 \$679,000 the second year is from the trust
36.25 fund to the commissioner of natural resources
36.26 for an agreement with the city of Tower to
36.27 construct recreational trails along the harbor
36.28 in Tower and to connect to the Mesabi Trail.
36.29 This appropriation is available until June
36.30 30, 2019, by which time the project must be
36.31 completed and final products delivered.

36.32 **(i) Otter Tail River Recreational Trail**
36.33 **Acquisition**

36.34 \$500,000 the second year is from the trust
36.35 fund to the commissioner of natural resources

37.1 for an agreement with the city of Fergus Falls
 37.2 to acquire approximately 16 acres along the
 37.3 Otter Tail River for a recreational trail and
 37.4 park. This appropriation is contingent on at
 37.5 least an equal match of nonstate money. Prior
 37.6 to the acquisition, a phase 1 environmental
 37.7 assessment must be completed and the city
 37.8 must not accept any liability for previous
 37.9 contamination of lands acquired with this
 37.10 appropriation.

37.11 Subd. 10. Administration -0- 210,000

37.12 **(a) Contract Agreement Reimbursement**

37.13 \$135,000 the second year is from
 37.14 the trust fund to the commissioner of
 37.15 natural resources, at the direction of
 37.16 the Legislative-Citizen Commission on
 37.17 Minnesota Resources, for expenses incurred
 37.18 for contract agreement reimbursement for
 37.19 the agreements specified in this section. The
 37.20 commissioner shall provide documentation
 37.21 to the Legislative-Citizen Commission on
 37.22 Minnesota Resources on the expenditure of
 37.23 these funds.

37.24 **(b) Grants Management System**

37.25 \$75,000 the second year is from the trust
 37.26 fund to the Legislative-Citizen Commission
 37.27 on Minnesota Resources for upgrading and
 37.28 modernizing a project records management
 37.29 system.

37.30 **Subd. 11. Availability of Appropriations**

37.31 Money appropriated in this section may
 37.32 not be spent on activities unless they are
 37.33 directly related to and necessary for a specific
 37.34 appropriation and are specified in the work

38.1 plan approved by the Legislative-Citizen
38.2 Commission on Minnesota Resources.
38.3 Money appropriated in this section must
38.4 not be spent on indirect costs or other
38.5 institutional overhead charges that are
38.6 not directly related to and necessary for
38.7 a specific appropriation. Costs that are
38.8 directly related to and necessary for an
38.9 appropriation, including financial services,
38.10 human resources, information services, rent,
38.11 and utilities, are eligible only if the costs
38.12 can be clearly justified and individually
38.13 documented specific to the appropriation's
38.14 purpose and would not be generated by
38.15 the recipient but for the receipt of the
38.16 appropriation. No broad allocations for costs
38.17 in either dollars or percentages are allowed.
38.18 Unless otherwise provided, the amounts in
38.19 this section are available until June 30, 2018,
38.20 when projects must be completed and final
38.21 products delivered. For acquisition of real
38.22 property, the appropriations in this section
38.23 are available for an additional fiscal year if a
38.24 binding contract for acquisition of the real
38.25 property is entered into before the original
38.26 expiration date of the appropriation. If a
38.27 project receives a federal grant, the time
38.28 period of the appropriation is extended to
38.29 equal the federal grant period.

38.30 **Subd. 12. Data Availability Requirements**

38.31 Data collected by the projects funded under
38.32 this section must conform to guidelines
38.33 and standards adopted by MN.IT Services.
38.34 Spatial data also must conform to additional
38.35 guidelines and standards designed to support
38.36 data coordination and distribution that have

39.1 been published by the Minnesota Geospatial
39.2 Information Office. Descriptions of spatial
39.3 data must be prepared as specified in
39.4 the state's geographic metadata guideline
39.5 and must be submitted to the Minnesota
39.6 Geospatial Information Office. All data must
39.7 be accessible and free to the public unless
39.8 made private under the Data Practices Act,
39.9 Minnesota Statutes, chapter 13. To the extent
39.10 practicable, summary data and results of
39.11 projects funded under this section should
39.12 be readily accessible on the Internet and
39.13 identified as having received funding from
39.14 the environment and natural resources trust
39.15 fund.

39.16 Subd. 13. **Project Requirements**

39.17 (a) As a condition of accepting an
39.18 appropriation under this section, an agency
39.19 or entity receiving an appropriation or a
39.20 party to an agreement from an appropriation
39.21 must comply with paragraphs (b) to (l)
39.22 and Minnesota Statutes, chapter 116P, and
39.23 must submit a work plan and semiannual
39.24 progress reports in the form determined
39.25 by the Legislative-Citizen Commission on
39.26 Minnesota Resources for any project funded
39.27 in whole or in part with funds from the
39.28 appropriation. Modifications to the approved
39.29 work plan and budget expenditures must
39.30 be made through the amendment process
39.31 established by the Legislative-Citizen
39.32 Commission on Minnesota Resources.

39.33 (b) A recipient of money appropriated in
39.34 this section that conducts a restoration using
39.35 funds appropriated in this section must use

40.1 native plant species according to the Board of
40.2 Water and Soil Resources' native vegetation
40.3 establishment and enhancement guidelines
40.4 and include an appropriate diversity of
40.5 native species selected to provide habitat for
40.6 pollinators throughout the growing season as
40.7 required under Minnesota Statutes, section
40.8 84.973.

40.9 (c) For all restorations conducted with money
40.10 appropriated under this section, a recipient
40.11 must prepare an ecological restoration
40.12 and management plan that, to the degree
40.13 practicable, is consistent with the highest
40.14 quality conservation and ecological goals for
40.15 the restoration site. Consideration should
40.16 be given to soil, geology, topography, and
40.17 other relevant factors that would provide
40.18 the best chance for long-term success and
40.19 durability of the restoration project. The
40.20 plan must include the proposed timetable
40.21 for implementing the restoration, including
40.22 site preparation, establishment of diverse
40.23 plant species, maintenance, and additional
40.24 enhancement to establish the restoration;
40.25 identify long-term maintenance and
40.26 management needs of the restoration and
40.27 how the maintenance, management, and
40.28 enhancement will be financed; and take
40.29 advantage of the best available science and
40.30 include innovative techniques to achieve the
40.31 best restoration.

40.32 (d) An entity receiving an appropriation in
40.33 this section for restoration activities must
40.34 provide an initial restoration evaluation
40.35 at the completion of the appropriation
40.36 and an evaluation three years beyond the

41.1 completion of the expenditure. Restorations
41.2 must be evaluated relative to the stated
41.3 goals and standards in the restoration plan,
41.4 current science, and, when applicable, the
41.5 Board of Water and Soil Resources' native
41.6 vegetation establishment and enhancement
41.7 guidelines. The evaluation must determine
41.8 whether the restorations are meeting planned
41.9 goals, identify any problems with the
41.10 implementation of the restorations, and,
41.11 if necessary, give recommendations on
41.12 improving restorations. The evaluation must
41.13 be focused on improving future restorations.

41.14 (e) All restoration and enhancement projects
41.15 funded with money appropriated in this
41.16 section must be on land permanently
41.17 protected by a conservation easement or
41.18 public ownership.

41.19 (f) A recipient of money from an
41.20 appropriation under this section must
41.21 give consideration to contracting with
41.22 Conservation Corps Minnesota for contract
41.23 restoration and enhancement services.

41.24 (g) All conservation easements acquired with
41.25 money appropriated under this section must:

41.26 (1) be permanent;

41.27 (2) specify the parties to an easement in the
41.28 easement;

41.29 (3) specify all of the provisions of an
41.30 agreement that are permanent;

41.31 (4) be sent to the Legislative-Citizen
41.32 Commission on Minnesota Resources in an
41.33 electronic format at least ten business days
41.34 prior to closing;

42.1 (5) include a long-term monitoring and
42.2 enforcement plan and funding for monitoring
42.3 and enforcing the easement agreement; and
42.4 (6) include requirements in the easement
42.5 document to address specific groundwater
42.6 and surface water quality protection activities
42.7 such as keeping water on the landscape,
42.8 reducing nutrient and contaminant loading,
42.9 protecting groundwater, and not permitting
42.10 artificial hydrological modifications.

42.11 (h) For any acquisition of lands or interest
42.12 in lands, a recipient of money appropriated
42.13 under this section must not agree to pay
42.14 more than 100 percent of the appraised value
42.15 for a parcel of land using this money to
42.16 complete the purchase, in part or in whole,
42.17 except that up to ten percent above the
42.18 appraised value may be allowed to complete
42.19 the purchase, in part or in whole, using this
42.20 money if permission is received in advance
42.21 of the purchase from the Legislative-Citizen
42.22 Commission on Minnesota Resources.

42.23 (i) For any acquisition of land or interest in
42.24 land, a recipient of money appropriated under
42.25 this section must give priority to high-quality
42.26 natural resources or conservation lands that
42.27 provide natural buffers to water resources.

42.28 (j) For new lands acquired with money
42.29 appropriated under this section, a recipient
42.30 must prepare an ecological restoration
42.31 and management plan in compliance with
42.32 paragraph (c), including sufficient funding
42.33 for implementation unless the work plan
42.34 addresses why a portion of the money is

43.1 not necessary to achieve a high-quality
43.2 restoration.

43.3 (k) To ensure public accountability for
43.4 the use of public funds, within 60 days
43.5 of the transaction, a recipient of money
43.6 appropriated under this section must provide
43.7 to the Legislative-Citizen Commission on
43.8 Minnesota Resources documentation of the
43.9 selection process used to identify parcels
43.10 acquired and provide documentation of all
43.11 related transaction costs, including but not
43.12 limited to appraisals, legal fees, recording
43.13 fees, commissions, other similar costs,
43.14 and donations. This information must be
43.15 provided for all parties involved in the
43.16 transaction. The recipient must also report
43.17 to the Legislative-Citizen Commission on
43.18 Minnesota Resources any difference between
43.19 the acquisition amount paid to the seller and
43.20 the state-certified or state-reviewed appraisal,
43.21 if a state-certified or state-reviewed appraisal
43.22 was conducted.

43.23 (l) A recipient of an appropriation from
43.24 the trust fund under this section must
43.25 acknowledge financial support from
43.26 the Minnesota environment and natural
43.27 resources trust fund in project publications,
43.28 signage, and other public communications
43.29 and outreach related to work completed
43.30 using the appropriation. Acknowledgment
43.31 may occur, as appropriate, through use of
43.32 the trust fund logo or inclusion of language
43.33 attributing support from the trust fund. Each
43.34 direct recipient of money appropriated in
43.35 this section, as well as each recipient of a
43.36 grant awarded pursuant to this section, must

44.1 satisfy all reporting and other requirements
 44.2 incumbent upon constitutionally dedicated
 44.3 funding recipients as provided in Minnesota
 44.4 Statutes, section 3.303, subdivision 10, and
 44.5 chapter 116P.

44.6 **Subd. 14. Payment Conditions and Capital**
 44.7 **Equipment Expenditures**

44.8 (a) All agreements, grants, or contracts
 44.9 referred to in this section must be
 44.10 administered on a reimbursement basis
 44.11 unless otherwise provided in this section.
 44.12 Notwithstanding Minnesota Statutes, section
 44.13 16A.41, expenditures made on or after
 44.14 July 1, 2016, or the date the work plan is
 44.15 approved, whichever is later, are eligible for
 44.16 reimbursement unless otherwise provided
 44.17 in this section. Periodic payment must be
 44.18 made upon receiving documentation that
 44.19 the deliverable items articulated in the
 44.20 approved work plan have been achieved,
 44.21 including partial achievements as evidenced
 44.22 by approved progress reports. Reasonable
 44.23 amounts may be advanced to projects to
 44.24 accommodate cash flow needs or match
 44.25 federal money. The advances must be
 44.26 approved as part of the work plan. No
 44.27 expenditures for capital equipment are
 44.28 allowed unless expressly authorized in the
 44.29 project work plan.

44.30 (b) Single-source contracts as specified in the
 44.31 approved work plan are allowed.

44.32 **Subd. 15. Purchase of Recycled and Recyclable**
 44.33 **Materials**

44.34 A political subdivision, public or private
 44.35 corporation, or other entity that receives an
 44.36 appropriation under this section must use the

45.1 appropriation in compliance with Minnesota
45.2 Statutes, section 16C.0725, regarding
45.3 purchase of recycled, repairable, and durable
45.4 materials; and Minnesota Statutes, section
45.5 16C.073, regarding purchase and use of
45.6 paper stock and printing.

45.7 **Subd. 16. Energy Conservation and**
45.8 **Sustainable Building Guidelines**

45.9 A recipient to whom an appropriation is made
45.10 under this section for a capital improvement
45.11 project must ensure that the project complies
45.12 with the applicable energy conservation and
45.13 sustainable building guidelines and standards
45.14 contained in law, including Minnesota
45.15 Statutes, sections 16B.325, 216C.19, and
45.16 216C.20, and rules adopted under those
45.17 sections. The recipient may use the energy
45.18 planning, advocacy, and State Energy Office
45.19 units of the Department of Commerce to
45.20 obtain information and technical assistance
45.21 on energy conservation and alternative
45.22 energy development relating to the planning
45.23 and construction of the capital improvement
45.24 project.

45.25 **Subd. 17. Accessibility**

45.26 Structural and nonstructural facilities must
45.27 meet the design standards in the Americans
45.28 with Disabilities Act (ADA) accessibility
45.29 guidelines.

45.30 **Subd. 18. Carryforward; Extension**

45.31 The availability of the appropriations for the
45.32 following projects are extended to June 30,
45.33 2017:

- 46.1 (a) Laws 2013, chapter 52, section 2,
46.2 subdivision 3, paragraph (c), County
46.3 Geologic Atlases - Part B;
- 46.4 (b) Laws 2013, chapter 52, section 2,
46.5 subdivision 4, paragraph (d), Metropolitan
46.6 Conservation Corridors (MeCC) - Phase
46.7 VII, \$400,000 for the agreement with the
46.8 Minnesota Valley National Wildlife Refuge
46.9 Trust, Inc. only;
- 46.10 (c) Laws 2013, chapter 52, section 2,
46.11 subdivision 4, paragraph (i), Conservation
46.12 Grazing to Improve Wildlife Habitat on
46.13 Wildlife Management Areas;
- 46.14 (d) Laws 2013, chapter 52, section 2,
46.15 subdivision 5, paragraph (b), Assessment of
46.16 Natural Copper-Nickel Bedrocks on Water
46.17 Quality;
- 46.18 (e) Laws 2013, chapter 52, section 2,
46.19 subdivision 5, paragraph (f), Evaluation of
46.20 Lake Superior Water Quality Health;
- 46.21 (f) Laws 2013, chapter 52, section 2,
46.22 subdivision 6, paragraph (c), Improving
46.23 Emerald Ash Borer Detection Efficacy for
46.24 Control;
- 46.25 (g) Laws 2014, chapter 226, section 2,
46.26 subdivision 3, paragraph (l), Rainwater
46.27 Reuse and Valuation Investigation;
- 46.28 (h) Laws 2014, chapter 226, section
46.29 2, subdivision 10, paragraph (c),
46.30 Legislative-Citizen Commission on
46.31 Minnesota Resources (LCCMR) for upgrade
46.32 and modernization of a project records
46.33 management system; and

47.1 (i) Laws 2014, chapter 226, section 2,
47.2 subdivision 8, paragraph (b), Innovative
47.3 Groundwater-Enhanced Geothermal Heat
47.4 Pump Study.

47.5 **Sec. 3. [116P.19] DONATIONS.**

47.6 A recipient of money from the trust fund must not accept a monetary donation
47.7 or payment from an owner of land that is acquired in fee in whole or in part with
47.8 an appropriation from the trust fund that exceeds the documented expenses that are
47.9 directly related to and necessary for activities specified in the work plan approved by the
47.10 commission, unless expressly approved by the commission in the work plan. This section
47.11 does not apply to:

47.12 (1) donations that are not connected with the acquisition transaction; or
47.13 (2) bargain sales, as defined by Code of Federal Regulations, title 26, section
47.14 1.1011-2, provided that the purchase price reimbursed by the state does not exceed the
47.15 purchase price paid by the recipient.

47.16 **Sec. 4. [116P.20] EASEMENT MONITORING AND ENFORCEMENT**
47.17 **REQUIREMENTS.**

47.18 A recipient of money appropriated from the trust fund for easement monitoring and
47.19 enforcement may spend the money only on activities included in an easement monitoring
47.20 and enforcement plan contained within the work plan. Money received for monitoring
47.21 and enforcement, including earnings on the money received, must be kept in a monitoring
47.22 and enforcement fund held by the recipient and dedicated to monitoring and enforcing
47.23 conservation easements in Minnesota. A recipient of an appropriation for easement
47.24 monitoring and enforcement must, within 120 days after the close of the recipient's
47.25 fiscal year, provide an annual financial report to the commission or the commission's
47.26 successor on the easement monitoring and enforcement fund as specified in the work plan.
47.27 Money appropriated from the trust fund for monitoring and enforcement of easements and
47.28 earnings on the money appropriated revert to the state if:

47.29 (1) the easement transfers to the state;
47.30 (2) the recipient fails to file an annual financial report and then fails to cure the
47.31 default within 30 days of notification of the default by the state; or
47.32 (3) the recipient fails to comply with the terms of the monitoring and enforcement
47.33 plan contained within the work plan and fails to cure the default within 90 days of
47.34 notification of the default by the state.