Wisconsin Pest Summit

Feb. 3, 2015

## A Brief History of Common Barberry Eradication in Wisconsin, 1918 to 2015

Adrian Barta DATCP Pest Survey

### Barberry, Wheat and Stem Rust

Stem rust (Puccinia graminis) is historically the most destructive disease of small grains 1916 stem rust epidemic cut N. American wheat yields by 2/3—estimated loss of >200 million bushels 1918 The War Emergency Board of American Plant Pathologists is formed with the goal of ensuring that the food supply in the nation would remain secure. This was accomplished by identifying important diseases and focusing efforts on these diseases through a collaboration of state and federal personnel.





### Barberry, Wheat and Stem Rust

Common barberry (Berberis vulgaris) is the alternate host of stem rust

The association between rusted wheat and barberry was noticed as early as the 1600s Barberry eradication effort was begun in 1918



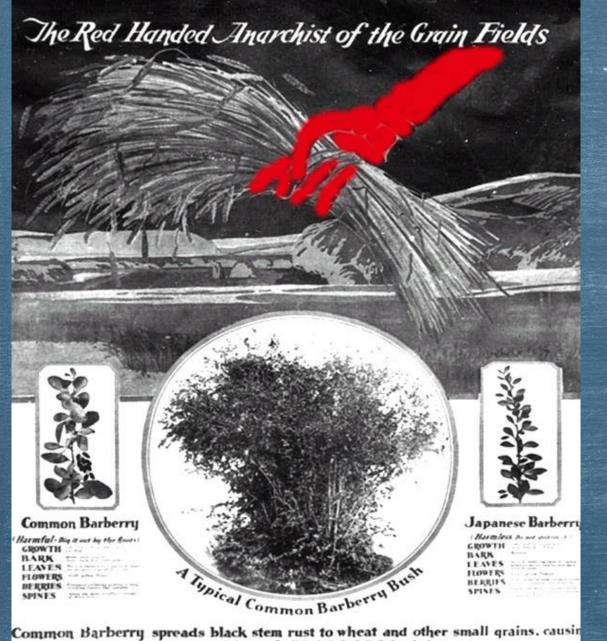


# Rationale for eradicating common barberry

Remove early spring source of rust inoculum Reduce the likelihood of new races of rust arising Increase the lifespan of wheat varieties

## A well-liked and useful plant Wine, jam, dye, tool handles, fencing, color





### THIS BARBERRY BUSH IS A **KINTHE KAISER**

Its owner has been requested by the Nebraska **State Council of Defense** and the U.S. Government to dig it up and destroy it.

DO IT NOW!

**Barberry Eradication Day**, May 4th, 1918

an annual loss of 50,000.000 bushels.

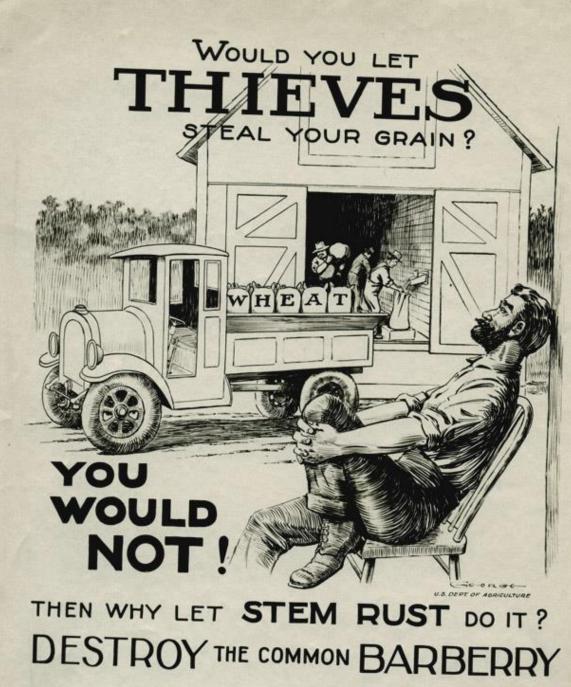
### **DESTROY IT NOW!**



#### OUTLAWED COMMON BARBERRY BUSHES have escaped from cultivation and may be found growing wild in woods, pastures and along fence rows and streams in this vicinity. They spread Black Stem Rust, a plant disease which annually destroys millions of bushels of Wheat, Oats, Barley and Rye. Common Barberry bushes have been condemned and must be destroyed. Learn to Recognize them by Leaves Thorns Unially these Act Barri Att A LEVEL Berries Oval, height red, hanging in clusters Outer back gray, inter back, wood Shape of Bush Erect with many canca, any Rought up to B or 10 fe and posts bright yellow EXAMINE YOUR PLANTED SHRUBBERY-YOU MAY BE HARBORING A CRIMINAL Ingeneens Marinany to Sarashan the Nut Dutercelthe location of such bushes to the State Leader of

Barberry Eradication, in care of your State Agricul-

tural College or your State Department of Agriculture.



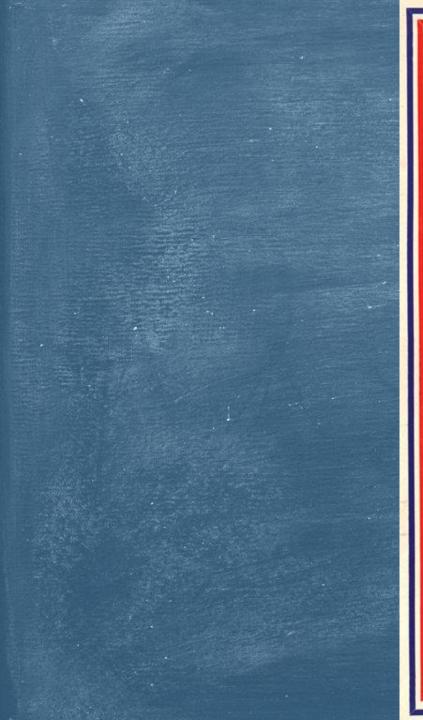
# Common Barberry

### AND IS AN "ALIEN ENEMY"

The Minnesota Commission of Public Safety, Order No. 28, requires the immediate destruction of this bush.

### STATE ENTOMOLOGIST

University Farm St. Paul, Minnesota.



#### NATIONAL RUST BUSTERS CLUB



#### N. R. B. C. Medal

Any boy or girl in Iowa can obtain a beautiful bronze medal like the one shown above and become a member of the National Rust Busters Club, if he or she will report a property on which common barberry bushes are growing.

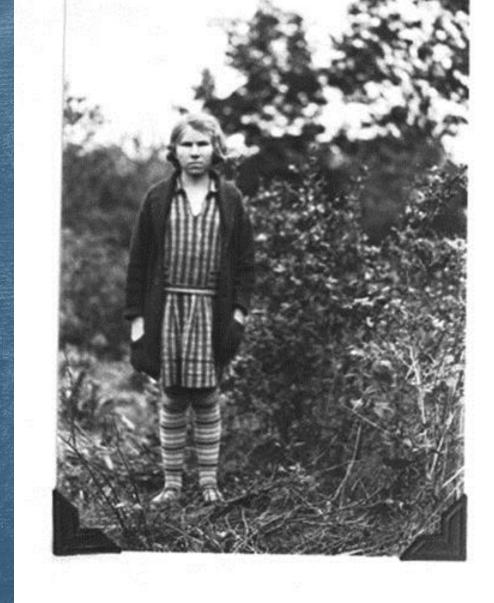
Common barberry spreads a disease called "black stem rust," which destroys millions of bushels of wheat, oats, barley, and rye every year. Help us find these bushes and "bust the rust."

Of course, in order to find and report common barberry bushes, you must know what they look like and where they may be found growing. Every school is entitled to a complete set of educational material about the barberry, consisting of colored charts, posters, bulletins, a pressed specimen, and a lesson plan. Find out what the common barberry looks like and how it spreads black stem rust.

To report a common barberry, mail a small twig to the Barberry Eradication Office, Iowa State College, Ames, Iowa.

Prepared by the Rust Prevention Association, 300 Lewis Building, Minneapolis, Minn., in cooperation with the Bureau of Plant Industry. U. S. Department of Agriculture, Washington, D. C.





Iris Graves beside one of the common barberry bushes found in the area of escapes which was discovered as a result of her efforts.





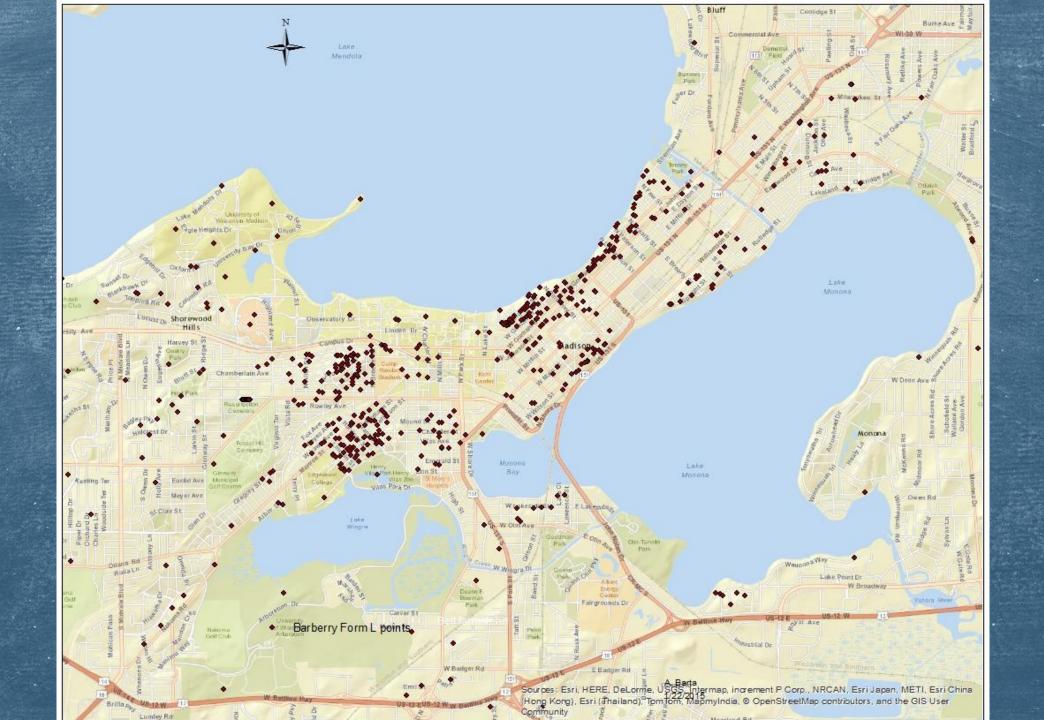
### WI Barberry Eradication 1918-1976

Cooperative program between USDA and State Departments of Agriculture.

Crews went door-to-door, farm-to-farm, throughout the Upper Midwest, urban and rural, to find and destroy barberry bushes.

| RESURVEY   |   |      |
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| DISPOSITION OF BUSHES LEFT ON FORMER VISITS OR NEW FINDINGS CHEMICALS, KIND AND AMTS, FURNISHED BY   | 7 at south entrance.  |      |
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| DESCRIPTION Sec. 37 10 T 6 N, P9E Fitchburg<br>QUARTER, SECTION, TOWNSHIP, RANGE, OR STREET AND NUMBER Furt  |   | -    |
| QUARTER, SECTION, TOWNSHIP, RANGE, OR STREET AND NUMBER Just   |   |      |
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| LARGE 19   | SPROLITING BUSHES FOUND SPRING BUSHES DELT NOW BURNET STREAME   | -    |
| MEDIUM DUC TOFATED DEMANNING KINDE OWNER STATE FED DER CRAP  |   | -    |
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|  | 012 0 60 0 0 0 0  |      |
| SEEDLINGS  | NORTH POINT   | 1    |
| *A=Sodium Arsenite; B=Carbon Bisulfide; C=Sodium Dichromate; D=Dug; K=Kerosene; S=Salt; Etc.<br>ATTITUDE OF OWNER  | DVLE aconta   | 94   |
|  |   | 161  |
| SCOUTS   | BARBERRY BUSHES X X X<br>DEALED AND THE LOW FORMER ADDIES ON NEW FINDINGS<br>INDICATE LOCATION OF FARMSTEAD AND PERMANENT LANDMARKS | 0 8/ |
| DATE / 7/0   | DRAW A GOOD MAP. LOCATING THE BUSHES WITH REFERENCE TO PERMANENT LANDMARKS. WSU Barberry 13-5019                                    |      |
| DESCRIPTION OF ARE / WITH MAP ON BACK B-5019 GOVERNMENT PRENTURE OFFICE  |   |      |
|  | RESURVEY  |      |

August States and



### WI Barberry Eradication 1918-1976

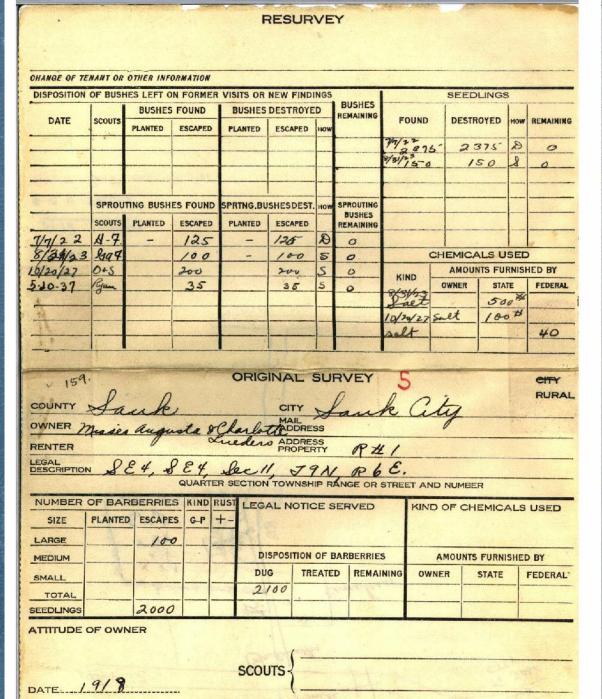
By 1934, 350 people were working on barberry eradication in Wisconsin Found bushes at **18,442 properties** in the

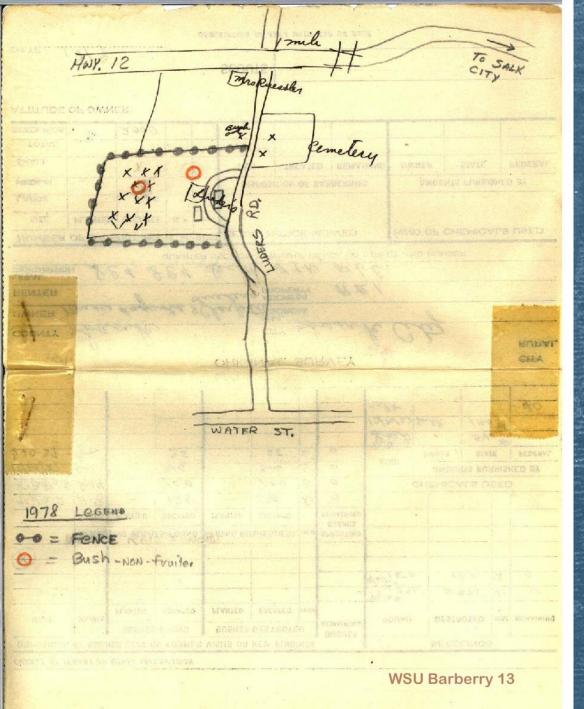
state

Between 1918 and 1977, Wisconsin crews found and destroyed



barberry bushes in Wisconsin, according to USDA records





DESCRIPTION OF AREA WITH MAP ON BACK

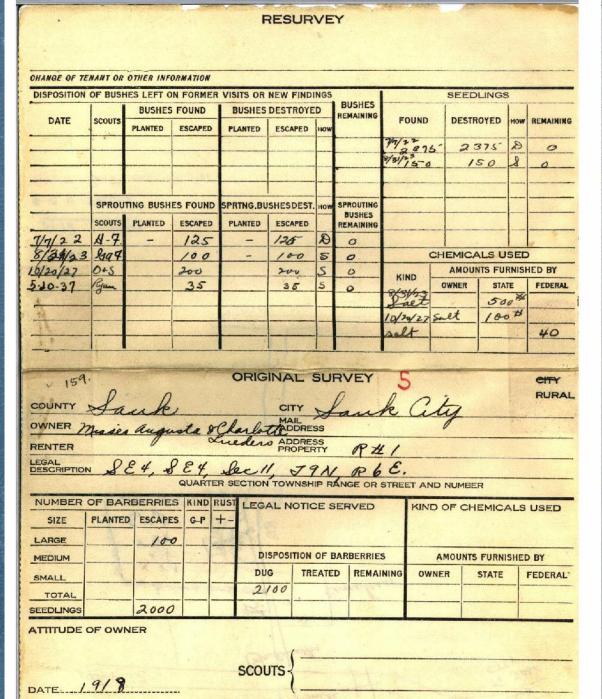


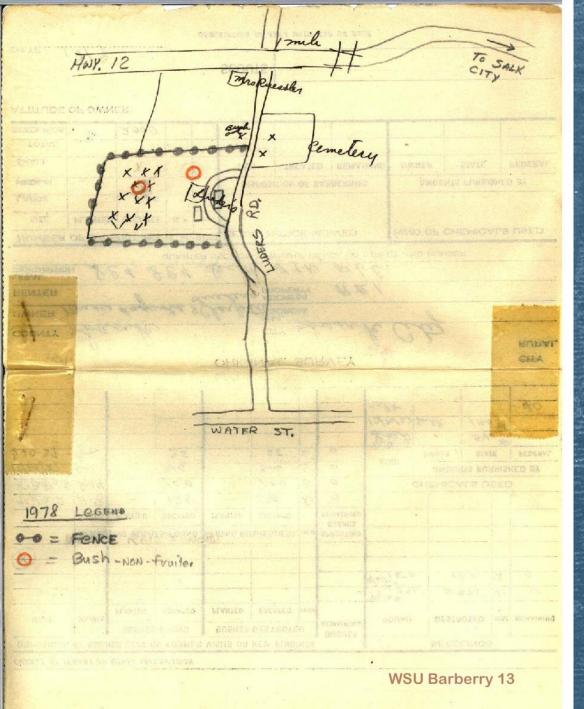
FIG. 13 .- THE PROPER WAY TO REMOVE BARBERRY BUSHES

Dig deep enough to get all of the roots out with the plant to prevent sprouting. Heavy canvas gloves protect the hands.



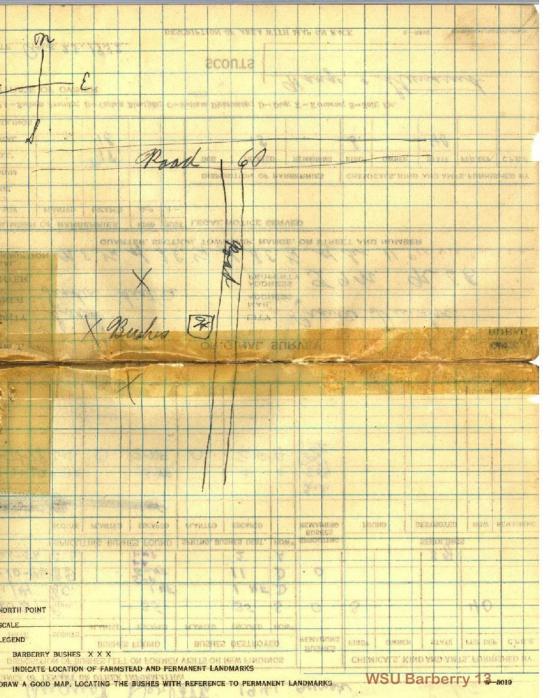






DESCRIPTION OF AREA WITH MAP ON BACK

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| DATE  | SCOUTS            | PLANTED                      | ESCAPED                         | PLANTED   | ESCAPED   | HOW*  |   |   |                    | 1                                    |  | -              | N  |
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|   | SPROU             | TING BUSH                    | ES FOUND                        | SPRTNG. BL  | JSHES DEST.   | HOW*  | SPROUTING   |   |                    | SEEDLING                             | S  | Part and       |  |
|   | SCOUTS            | PLANTED                      | ESCAPED                         | PLANTED   | ESCAPED   |   | BUSHES<br>REMAINING                                 | FOI   | UND                | DESTROYED                            | HOW  | REMAINING      |  |
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| COUNTY<br>DWNER<br>RENTER<br>REGAL<br>DESCRIPTION<br>SIZE P<br>ARGE<br>AEDIUM<br>MALL   | F BARE            | QUAR                         | KIND RU                         | E Ly<br>TION, TOW<br>ST LEGAL                             | CITY<br>MAII<br>ADD<br>PRO<br>PRO<br>J. SHIP, RJ<br>NOTICE S  | RESS<br>PERT<br>C. J<br>ANGE<br>SERVE   | Oran<br>V J. U<br>OR STREE<br>ED<br>EERRIES         | A M<br>Sure.<br>CHEMI<br>KIND*              |                    |                                      | E.<br>B.   | SAC.           |  |
| COUNTY<br>DWNER<br>RENTER<br>EGAL<br>DESCRIPTION<br>SIZE P<br>ARGE<br>AEDIUM<br>MALL <sup>-</sup><br>TOTAL  | F BARE            | QUAR                         | KIND RU                         | E Ly<br>TION, TOW<br>ST LEGAL                             | CITY<br>MAII<br>ADD<br>PRO<br>PRO<br>J. SHIP, RJ<br>NOTICE S  | RESS<br>PERT<br>C. J<br>ANGE<br>SERVE   | Oran<br>V J. U<br>OR STREE<br>ED<br>EERRIES         | 9 M<br>Sur.<br>EET ANI                      |                    | ND AND AMT                           | E.<br>B.   | SAC.           |  |
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| COUNTY<br>DWNER<br>RENTER<br>EGAL<br>DESCRIPTION<br>NUMBER OU<br>SIZE P<br>ARGE<br>AEDIUM<br>MALL <sup>-</sup><br>TOTAL<br>SEEDLINGS<br>*A-Sodium | F BARE<br>LANTED  | QUAR<br>BERRIES<br>ESCAPED   | KIND RU                         | E Ly<br>FION, TOW<br>ST LEGAL<br>DISP<br>DUG              | CITY<br>MAII<br>ADD<br>PRO<br>S. (<br>/NSHIP, R/<br>NOTICE S<br>OSITION OF<br>TREATE<br>18                      | Y<br>L<br>RESS<br>PPERT<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J | Y T<br>OR STREE<br>D<br>BERRIES<br>REMAINING        | CHEMI<br>KIND <sup>#</sup><br>S.<br>e; S=Sa | CALS. KI           | ND AND AMT<br>STATE<br>40            | S. FURNIS<br>FED. DEP.   | SAC.           | NOR  |
| COUNTY<br>DWNER<br>RENTER<br>EGAL<br>DESCRIPTION<br>NUMBER OU<br>SIZE P<br>ARGE<br>AEDIUM<br>MALL <sup>*</sup><br>TOTAL<br>SEEDLINGS              | F BARE<br>LANTED  | QUAR<br>BERRIES<br>ESCAPED   | KIND RU                         | E Ly<br>FION, TOW<br>ST LEGAL<br>DISP<br>DUG<br>Sodium Du | CITY<br>MAII<br>ADD<br>PRO<br>S. (<br>/NSHIP, R/<br>NOTICE S<br>OSITION OF<br>TREATE<br>18                      | Y<br>L<br>RESS<br>PPERT<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J<br>C. J | Y T<br>OR STREE<br>D<br>BERRIES<br>REMAINING        | CHEMI<br>KIND <sup>#</sup><br>S.<br>e; S=Sa | CALS. KI           |                                      | S. FURNIS<br>FED. DEP.   | SAC.           | NOR  |

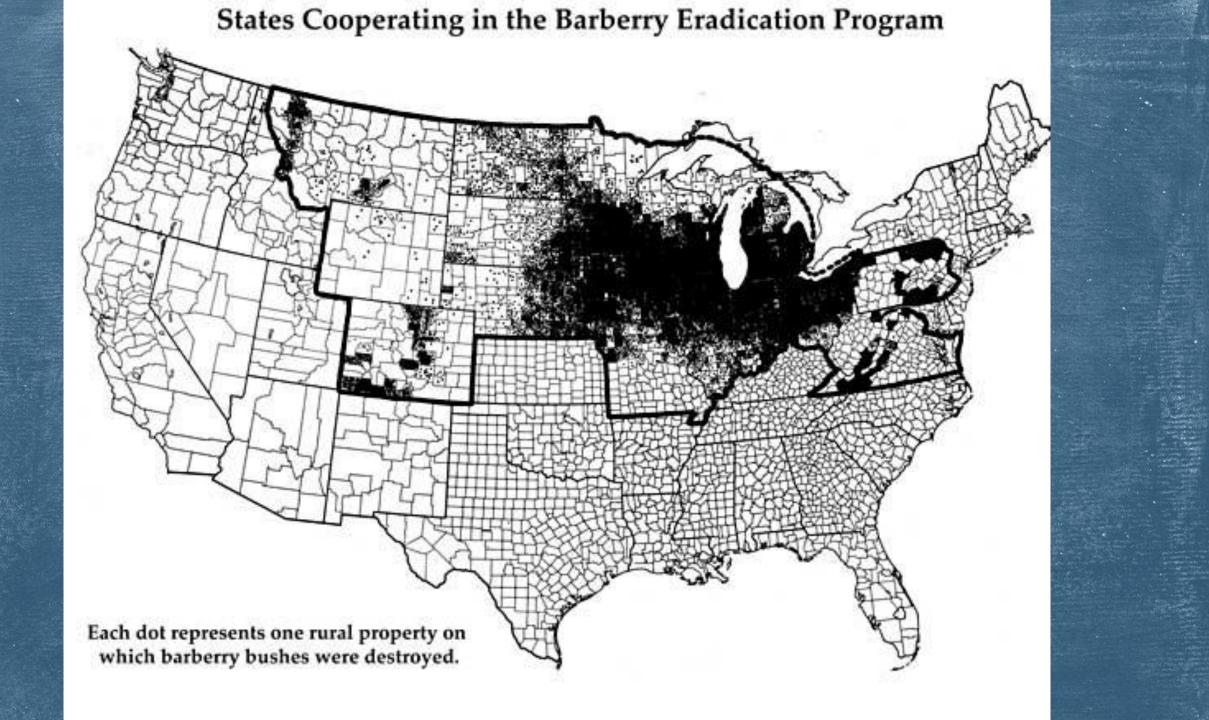


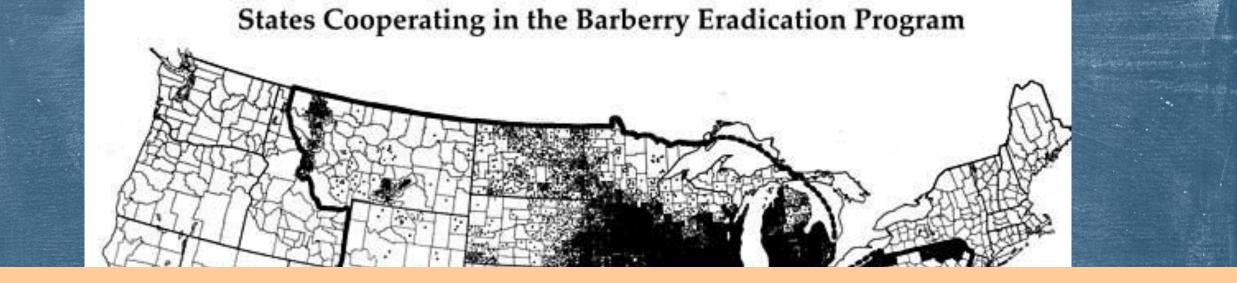
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| 1. 47 G.   | D  | 10-F.   |  | 61  | A  |   |  |                              |  | 34                             |                    | NEDI     | 1                     |                  | 24                                    |   |   |  |              | LIST   |   | HE WEALD    | 1   | CIMIN.   | 1.00                                  | MILE L         |  |         |
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| 7/337-   | KO   | 6   | 0                                      | 6   | S  | 0   | d  |                              | 26                                       | 5                              | 0                  | -140     | MBERG                 | N. 1374          | DEMONE                                | R R   | NAD SI  | n re   | Par uk       | LICE   | 26144   | ESD.        |   |  |                                       |                |  |         |
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| NER Q. Q.  | me<br>Bjelde   | 19  | 14                                     | CIT<br>MAT<br>ADD<br>ADD<br>PRC   | Y BORESS   | ach Ca<br>plack   |  |                              |  | A CONTRACT OF                  | A REAL AND A DECK  |          |                       |                  |                                       |   |   |  |              |        | ani   | SAE/        |   |  |                                       |                |  |         |
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| NTY Da<br>IER A. Q.<br>TER   | Mjelde<br>With J 7 F<br>QUAR<br>ARBERRIES  | 19<br>14<br>14 9 10<br>TER! SECT  | TON, TOW                               | CIT<br>MAI<br>ADD<br>PRC<br>77 N.   | Y BORESS<br>DRESS<br>DPERTY<br>Muse<br>ANGE,   | plack Co<br>plack   |  |                              |  | A CONTRACT OF                  | A REAL AND A DECK  |          |                       |                  |                                       |   | · 211   |  |              |        |   |             |   |  |                                       |                |  |         |
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| RIPTION 7.   | ARBERRIES<br>TED ESCAPED<br>38   | 19<br>19<br>TER. SECT<br>KIND RUS<br>G-P +<br>9 +   | TC. /0<br>TION. TOW                    | CITY<br>MAI<br>ADE<br>PRC<br>777 M.<br>(NSHIP, R<br>NOTICE<br>OSITION OF  | Y BU<br>DRESS<br>DPERTY<br>MUM<br>ANGE,<br>SERVEI  | plack<br>or stree   | tanf<br>EET ANI  |                              | 6 E<br>ER<br>ID AND AM<br>STATE          | FURNIS<br>FED. DEP.            | HED BY             |          |                       |                  | al muse e                             |   | сол.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.<br>С.                    | 55 237 24  |              |        |   |             | ti Mine   | 2  | e dunz                                |                |  |         |
| MTX D a<br>ER A. A.<br>TER<br>RIPTION 7.,<br>MBER OF B<br>ZE PLAN  | Line<br>Djelde<br>W.L. J. J. F.<br>QUAR<br>ARBERRIES<br>TED ESCAPED<br>38<br>243   | 19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19<br>19  | DEC. /O<br>TION, TOW<br>TI LEGAL       | CITY<br>MAI<br>ADE<br>PRC<br>777 M.<br>(NSHIP, R<br>NOTICE<br>OSITION OF<br>TREAT   | Y BU<br>DRESS<br>DPERTY<br>WILL<br>MANGE,<br>SERVEL  | D   | CHEM   | D NUMBE                      | 6 E<br>ER                                | FURNIS<br>FED. DEP.            | HED BY             |          |                       |                  |                                       |   |   | Section 20   |              |        | - HOU   |             | Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Citerine<br>Cit |  | C C C C C C C C C C C C C C C C C C C |                |  |         |
| NTY Da<br>NER A. A.<br>ITER<br>AL<br>IMBER OF B<br>SIZE PLANT<br>SE<br>UM  | ARBERRIES<br>TED ESCAPED<br>38<br>243<br>2625<br>9906<br>140   | 19<br>19<br>TER. SECT<br>KIND RUS<br>G-P +-<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7 | DISP<br>DUG                            | CITY<br>MAI<br>ADD<br>PRC<br>7.7 N.<br>(NSHIP, R<br>NOTICE<br>OSITION OF<br>TREAT<br>1.20<br>1.40                           | Y BU<br>DRESS<br>DRESS<br>DPERTY<br>WILL<br>ANGE,<br>SERVEI                                      | Ach Co<br>plack<br>or stree<br>D<br>ERRIES<br>TEMAINING<br>O<br>O               | CHEMI<br>KIND*   | ICALS, KIN                   | 6 E<br>ER<br>ID AND AM<br>STATE          | FURNIS<br>FED. DEP.            | HED BY             | 2        |                       |                  |                                       |   |   | D<br>BSBTW<br>FLAN   |              |        |   |             | KINING<br>SARA  | · · · · · · · · · · · · · · · · · · ·  | e<br>e<br>e<br>e<br>e<br>e<br>e       |                |  |         |
| NTY Da<br>NER A. A.<br>TER<br>AL<br>IMBER OF B<br>SIZE PLANT<br>SE<br>UM   | ARBERRIES<br>TED ESCAPED<br>38<br>243<br>2625<br>2906  | 19<br>19<br>TER. SECT<br>KIND RUS<br>G-P +-<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7 | DISP<br>DUG                            | CITY<br>MAI<br>ADD<br>PRC<br>7.7 N.<br>(NSHIP, R<br>NOTICE<br>OSITION OF<br>TREAT<br>1.20<br>1.40                           | Y BU<br>DRESS<br>DRESS<br>DPERTY<br>WILL<br>ANGE,<br>SERVEI                                      | Ach Co<br>plack<br>or stree<br>D<br>ERRIES<br>TEMAINING<br>O<br>O               | CHEMI<br>KIND*   | ICALS, KIN                   | 6 E<br>ER<br>ID AND AM<br>STATE          | FURNIS<br>FED. DEP.            | HED BY             | 7.77     | TH POINT              |                  |                                       |   |   | C C C C C C C C C C C C C C C C C C C  |              |        |   |             | Sunday Contraction of the second seco  | 2 2 2<br>2 2<br>2 2<br>2 2   | e<br>e<br>nup                         |                |  |         |
| NTY Da<br>NER A. Q.<br>NER A. Q.<br>NTER<br>AL<br>DIMBER OF B<br>SIZE PLAN<br>RE<br>UM<br>L<br>L<br>FAL<br>DLINGS<br>A-Sodium Arse | $\frac{1}{140}$ $\frac{1}{140}$ $\frac{1}{140}$ $\frac{1}{140}$ $\frac{1}{140}$ $\frac{1}{140}$  | 19<br>19<br>TER. SECT<br>KIND RUS<br>G-P +-<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7 | DISP<br>DUG<br>DUG                     | CITY<br>MAI<br>ADD<br>PRC<br>7.7 N.<br>(NSHIP, R<br>NOTICE<br>OSITION OF<br>TREAT<br>1.20<br>1.40                           | Y BU<br>DRESS<br>DRESS<br>DPERTY<br>WILL<br>ANGE,<br>SERVEI<br>F BARBE<br>FED R<br>G<br>D-Dug; 1 | Ach Con<br>plack<br>or stree<br>D<br>ERRIES<br>EEMAINING<br>O<br>O<br>K-Keroser | CHEM<br>KIND <sup>#</sup><br>S   | D NUMBE                      | 6 E<br>ER<br>ND AND AM<br>STATE<br>14,20 | RI<br>ITS. FURNIS<br>FED. DEP. | HED BY<br>C.P.G.R. | SC       | LE.                   | scour            | S S S S S S S S S S S S S S S S S S S |   |   |  |              |        |   |             | Viring<br>Control of the second s   | х<br>2<br>2<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3 | G<br>G<br>G<br>NUR<br>G               |                |  |         |
| INTY Da<br>NER A. A.<br>NTER<br>AL<br>CRIPTION7,<br>UMBER OF B<br>SIZE PLAN<br>SE<br>IUM<br>LL<br>ITAL                             | $\frac{1}{140}$  | 19<br>19<br>TER. SECT<br>KIND RUS<br>G-P +-<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7<br>9 7 | DISP<br>DUG<br>DUG<br>Bodium Di<br>DUG | CITY<br>MAI<br>ADD<br>PRC<br>ADE<br>PRC<br>7.7 M.<br>(NSHIP. R<br>NOTICE<br>OSITION O<br>TREAT<br>170<br>140<br>chromate; D | Y BU<br>DRESS<br>DRESS<br>DPERTY<br>WILL<br>ANGE,<br>SERVEI<br>F BARBE<br>FED R<br>G<br>D-Dug; 1 | Ach Con<br>plack<br>or stree<br>D<br>ERRIES<br>EEMAINING<br>O<br>O<br>K-Keroser | CHEM<br>KIND <sup>#</sup><br>S   | D NUMBE                      | 6 E<br>ER<br>ND AND AM<br>STATE<br>14,20 | FURNIS<br>FED. DEP.            | HED BY<br>C.P.G.R. | SC       | LE<br>JEND<br>BARBERR | aconu<br>Y BUSHE |                                       | ana Hez<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi<br>Asi |   | PLAN<br>PLAN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN<br>SERTIN |              |        | Anues<br>Area<br>Area<br>Area<br>Area<br>Area<br>Area<br>Area<br>Area |             |   | KIIIDA<br>KIIIDA<br>CHE  |                                       | WIKER<br>WIKER | aupe<br>star<br>star<br>star<br>star<br>star<br>star<br>star<br>star |         |

RESURVEY





# More that 500 million barberries were destroyed during the program

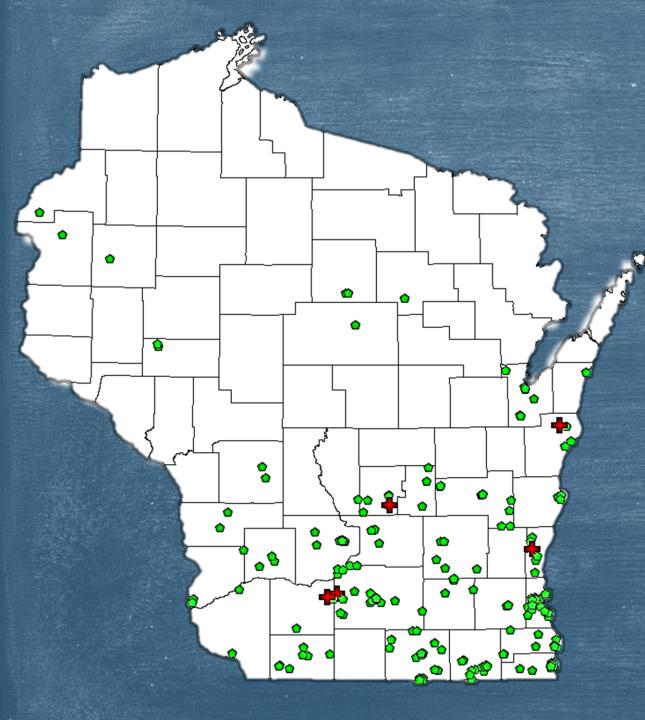
Each dot represents one rural property on which barberry bushes were destroyed.



## Is common barberry still a concern?

UG99, a new, particularly virulent race of stem rust was found in North Africa in 1999. A similar new race could arise here, or UG99 could (and probably will) reach the U. S. After all those years (and all that salt), how'd they do?

DATCP resurvey work 2009-2014 Random sample of Form L locations



### 192 sites with no barberry found

# 5 sites with common barberry present

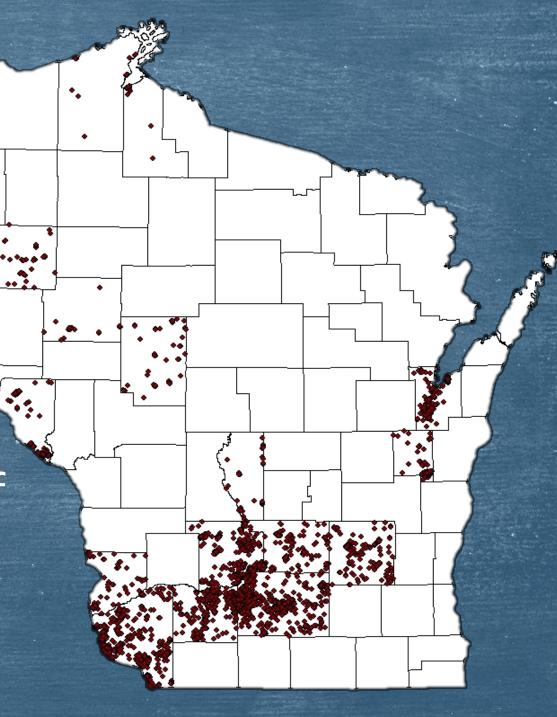
Bushes at all five sites **do** have rust every year

Collections sent to USDA Cereal Disease Laboratory for analysis Washington State University/APHIS-CPHST Developing and Serving a Database of Historical Barberry Survey Data

Farm-Bill funded program to collect, image, geocode and georectify all the remaining records from the USDA Barberry Eradication Program.
Started on Wisconsin records in 2013.
Returned digitized images in August 2014.
Returned a shapefile of locations in 17 counties in Nov. 2014, the rest are still in progress.

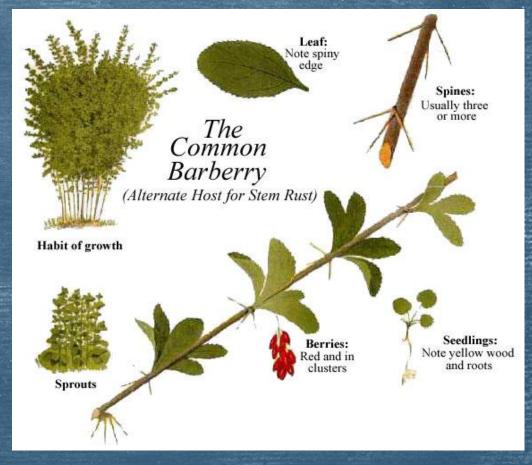
### 3,584 locations

Includes Form L data of counts, number of resurvey visits



### New possibilities for an old survey

Prioritize barberry survey based upon:
number of resurvey visits required
number of bushes originally found
density per township?





Use data to target wheat stem rust survey Proximity to historically high barberry counts

#### Images: USDA Cereal Disease Laboratory Archive DATCP Files American Phytopath Society Feature: "The Barberry or Bread" http://www.apsnet.org/publications/apsnetfeatures/Pages/Barberry.aspx

BARBERRY BEE, RED WING, MINNESOTA, SEPTEMBER 20, 1922