



2021 iTree Academy The Final Assignment

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Community Forestry Coordinator
Wyoming State Forestry Division



Presentation Contents

Laramie County Community College Inventory & Assessment

- iTree Eco
- iTree Canopy
- iTree Species
- iTree MyTree

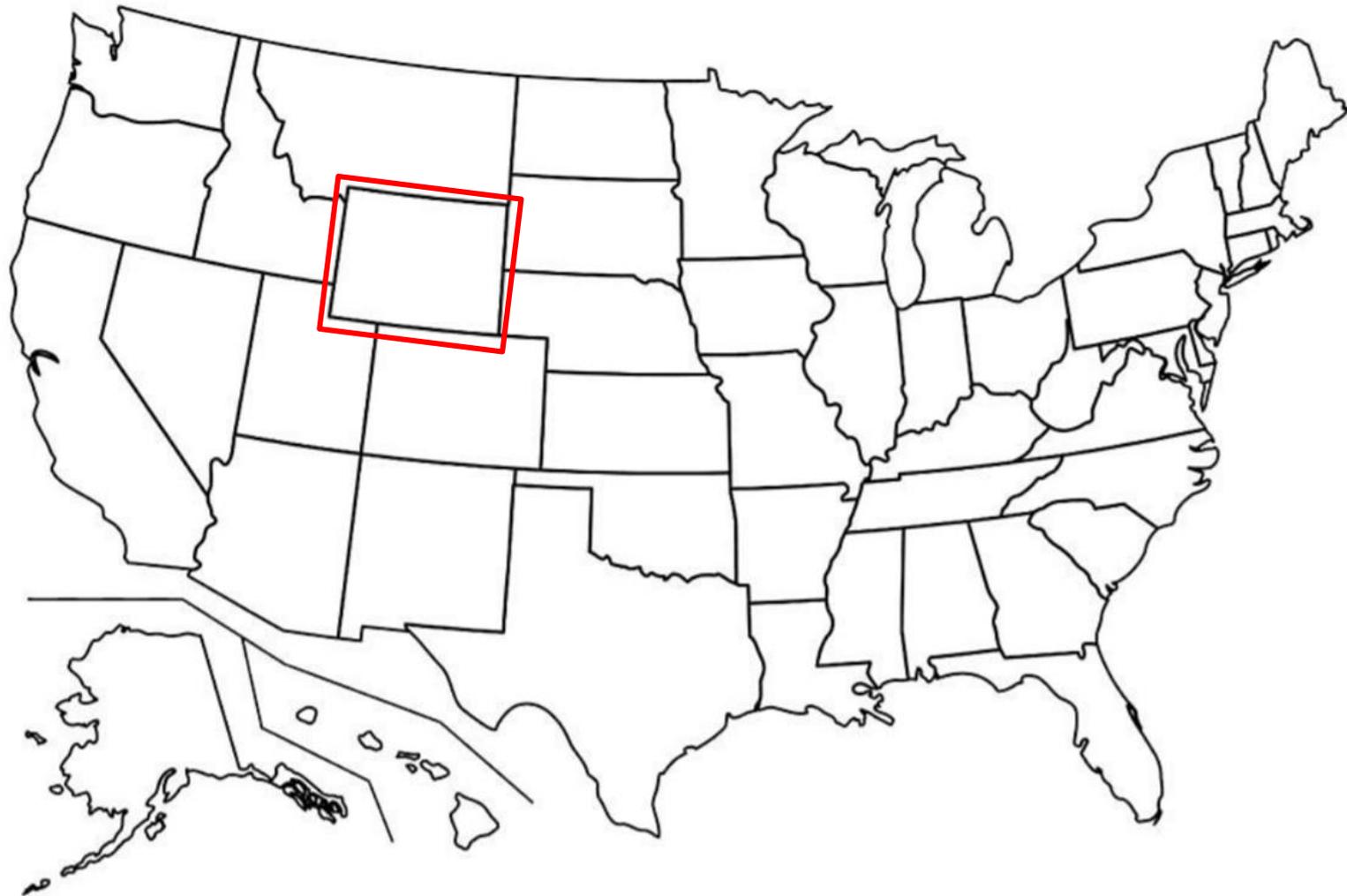
Training Materials

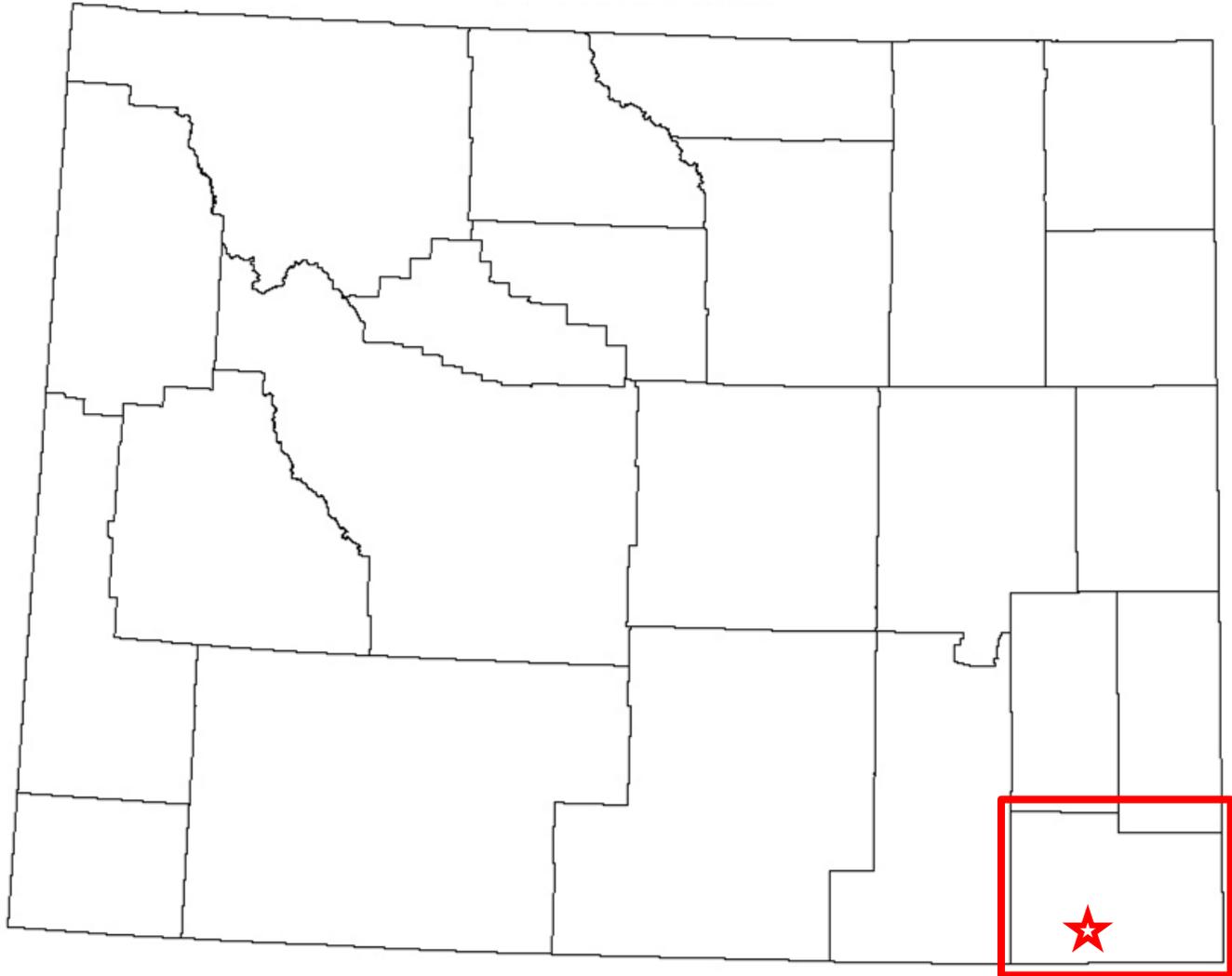
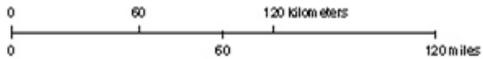
- iTree Design (PLT)
- iTree Species (PLT)
- iTree MyTree (infographic)



Laramie County Community College Tree Inventory

Assessment Using iTree Eco, iTree Canopy, iTree Species, & iTree MyTree
Tara Costanzo, Community Forestry Coordinator
Wyoming State Forestry Division
iTree Academy 2021

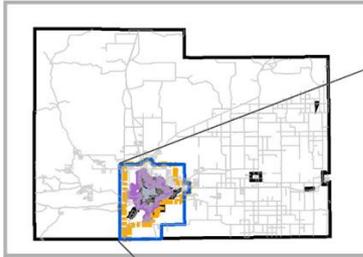






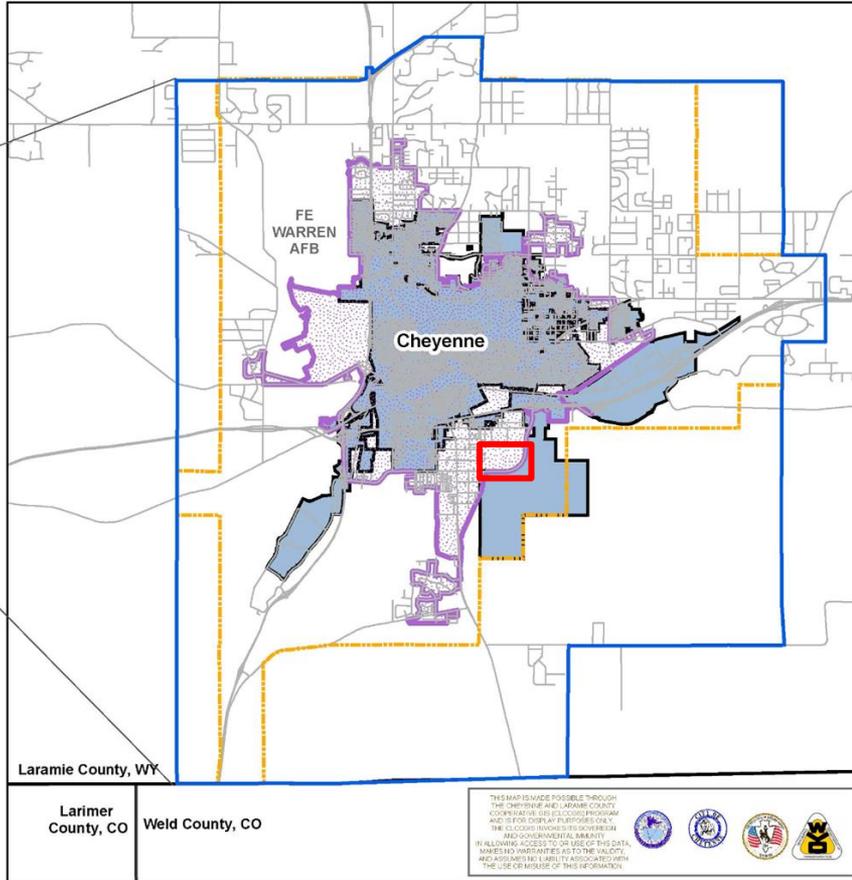
MPO Planning Boundary

Laramie County, WY



Legend

-  MPO Boundary 2018
-  Urban Boundary
-  Census Urban Area 2010
-  Cheyenne City Limits
-  Laramie County



Laramie County, WY

Larimer
County, CO

Weld County, CO

THE MAP IS MADE POSSIBLE THROUGH THE CHEYENNE AND LARAMIE COUNTY COMPREHENSIVE GIS DATA PROGRAM AND IS FOR DISPLAY PURPOSES ONLY. THE USER ASSUMES RESPONSIBILITY AND GOVERNMENTAL LIABILITY FOR ANY ACCESS TO OR USE OF THE DATA. MAKES NO WARRANTY AS TO THE VALIDITY AND ACCURACY OF THE DATA. THE USER ASSUMES THE LIABILITY ASSOCIATED WITH THE USE OR MISUSE OF THIS INFORMATION.





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to
I-80



to
South Greeley Hwy

WEST ENTRANCE

EAST
ENTRANCE

1400 E. College Drive • Cheyenne, Wyoming 82007
307.778.LCCC • lccc.wy.edu

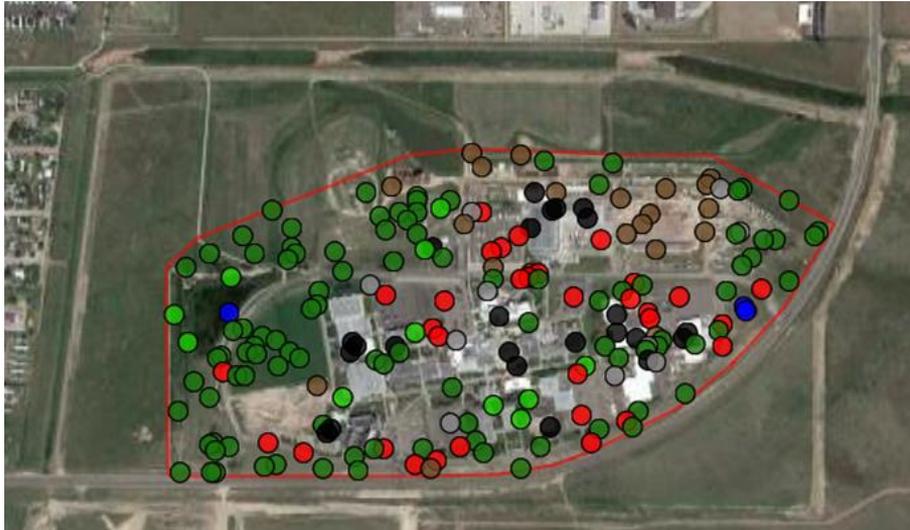
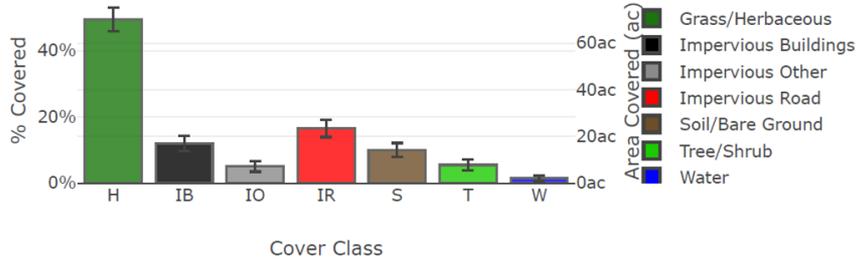
i-Tree Canopy v7.1

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 4/27/2021



Land Cover



4/27/2021

I-Tree Canopy

Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ac) ± SE
H	Grass/Herbaceous		99	49.50 ± 3.54	70.24 ± 5.02
IB	Impervious Buildings		24	12.00 ± 2.30	17.03 ± 3.26
IO	Impervious Other		10	5.00 ± 1.54	7.09 ± 2.19
IR	Impervious Road		33	16.50 ± 2.62	23.41 ± 3.72
S	Soil/Bare Ground		20	10.00 ± 2.12	14.19 ± 3.01
T	Tree/Shrub		11	5.50 ± 1.61	7.80 ± 2.29
W	Water		3	1.50 ± 0.87	2.13 ± 1.23
Total			200	100.00	141.89

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (T)	±SE	CO ₂ Equiv. (T)	±SE	Value (USD)	±SE
Sequestered annually in trees	6.34	±1.86	23.23	±6.81	\$1,081	±1317
Stored in trees (Note: this benefit is not an annual rate)	267.53	±78.41	980.94	±287.52	\$45,627	±13,373

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 0.812 T of Carbon, or 2.977 T of CO₂ per ac/yr and rounded. Amount stored is based on 34.281 T of Carbon, or 125.697 T of CO₂ per ac and rounded. Value (USD) is based on \$170.55/T of Carbon, or \$46.51/T of CO₂ and rounded. (English units: T = tons (2,000 pounds), ac = acres)

Tree Benefit Estimates: Air Pollution (English units)

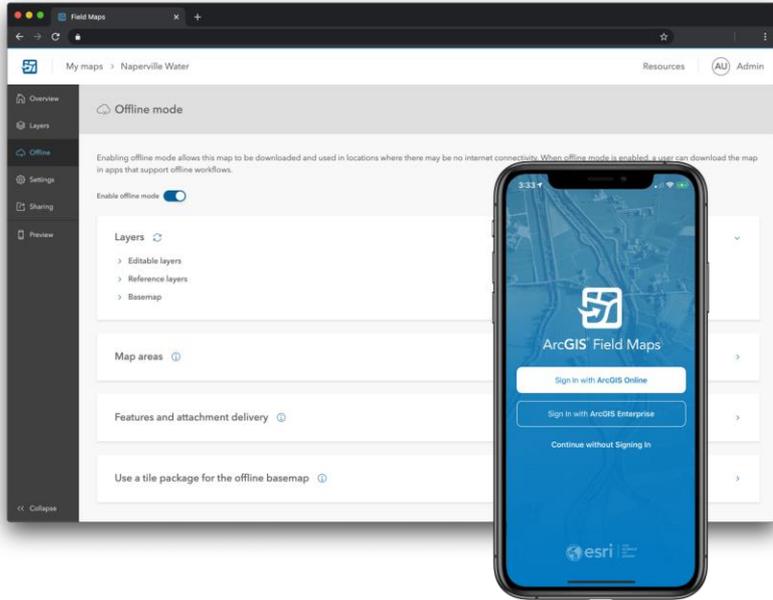
Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	4.03	±1.18	\$0	±0
NO2	Nitrogen Dioxide removed annually	75.77	±22.21	\$0	±0
O3	Ozone removed annually	286.05	±83.84	\$9	±3
SO2	Sulfur Dioxide removed annually	17.48	±5.12	\$0	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	6.98	±2.05	\$5	±2
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	87.27	±25.58	\$7	±2
Total		477.57	±139.98	\$22	±6

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/ac/yr @ \$/lb/yr and rounded:
 CO 0.516 @ \$0.02 | NO2 9.709 @ \$0.00 | O3 36.654 @ \$0.03 | SO2 2.240 @ \$0.00 | PM2.5 0.894 @ \$0.77 | PM10* 11.183 @ \$0.08 (English units: lb = pounds, ac = acres)

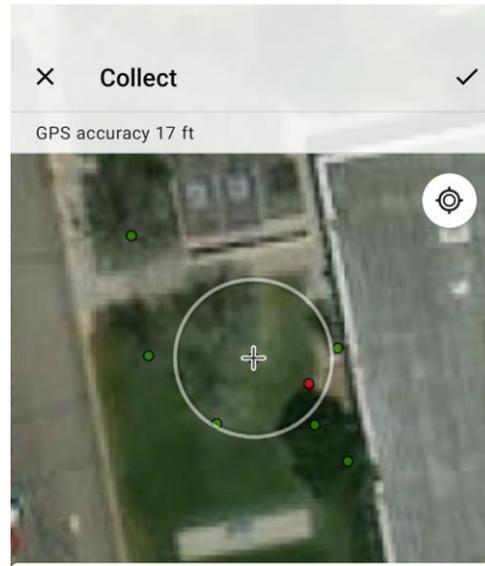
Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (Kgal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	1.12	±0.33	\$10	±3
E	Evaporation	371.79	±108.97	N/A	N/A
I	Interception	376.92	±110.47	N/A	N/A
T	Transpiration	1,499.07	±439.38	N/A	N/A
PE	Potential Evaporation	6,019.18	±1,764.24	N/A	N/A
PET	Potential Evapotranspiration	4,184.85	±1,226.59	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in Kgal/ac/yr @ \$/Kgal/yr and rounded:
 AVRO 0.143 @ \$8.94 | E 47.641 @ N/A | I 48.298 @ N/A | T 192.090 @ N/A | PE 771.296 @ N/A | PET 536.246 @ N/A (English units: Kgal = thousands of gallons, ac = acres)



- Formerly used Collector
> now using Field Maps app from ESRI



TreePoints: LCCC
41.103245°N 104.778767°W

UPDATE POINT

District
D2

DateCollected
05/28/2021 12:28 PM

ProjectName

TreePoints: LCCC
41.103245°N 104.778767°W

District
D2

DateCollected
05/28/2021 12:28 PM

ProjectName
LCCC

FeatureCollected *
Tree

GPS_Lon_X

GPS_Lat_Y

CommonName_SciName
Oak_Bur_Quercus_macrocarpa

OtherSpnNote

DBH



- Using in-house created database
- ESRI Field Maps app
- ArcGIS Online

Data Collected (currently collected as of 5/28/2021)

- 359 tree points
- 3 stumps

About Content Legend

Contents

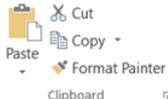
- CommunityTreeInventoryDataCollection
 - Imagery with Labels



CommunityTreeInventoryDataCollection (Features: 748, Selected: 0)

District	DateCollected	ProjectName	FeatureCollected	GPS	GPS	CommonName_SciName	OtherSpNote	DBH	CrownWidth_Avg	TreeHgt	Plac
D2	5/25/2021, 10:36 AM	LCCC	Tree			Pine_Ponderosa_Pinus_ponderosa		19.25	30	34.1	Fair
D2	5/25/2021, 10:44 AM	LCCC	Tree			Pine_Ponderosa_Pinus_ponderosa		13.75	25	30.2	Fair
D2	5/25/2021, 10:48 AM	LCCC	Tree			Pine_Ponderosa_Pinus_ponderosa		4.95	10	16.2	Fair

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ACROBAT



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Normal Bad Good Neutral Calculation Check Cell



AutoSum [Sum] [Average] [Count] [Max] [Min] [Fill] [Clear] Sort & Find & Filter - Select

A1 [X] [Checkmark] [fx] FeatureCollected

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
1	Feature	Long	Lat	Dist	DateCollected	ProjectName	iTree Species Scientific	iTree Species Common	Common	OtherSppN	DBH	CrownWidthAvg	TreeHgt	Place	iTreeReplacement	Cond	iTreeCondition	iTreeCondi	MgmtNeed1	Mgmt
2	Tree	-104.782	41.10336	D2	5/26/2021 21:03	LCCC	Abies	Fir	AB		3	5	8	3	fair	2	poor	50-74	Inspection_Needed	Stakes
3	Tree	-104.779	41.10273	D2	5/28/2021 17:28	LCCC	Abies concolor	white fir	ABCO		14	15	33.5	2	poor	2	poor	50-74	Inspection_Needed	Remov
4	Tree	-104.779	41.1028	D2	5/28/2021 17:29	LCCC	Abies concolor	white fir	ABCO		16	15	37.2	2	poor	2	poor	50-74	Inspection_Needed	Remov
5	Tree	-104.779	41.10279	D2	5/28/2021 17:35	LCCC	Abies concolor	white fir	ABCO		15	15	42.1	2	poor	3	fair	75-89	Crown_Clean	Cleara
6	Tree	-104.783	41.10529	D2	5/27/2021 16:15	LCCC	Abies concolor	white fir	ABCO		8.1	12.5	17.7	3	fair	2	poor	50-74	Crown_Clean	Stakes
7	Tree	-104.781	41.10244	D2	5/28/2021 16:16	LCCC	Abies concolor	white fir	ABCO		3.25	6	7.5	3	fair	2	poor	50-74	Inspection_Needed	Crown
8	Tree	-104.779	41.10273	D2	5/28/2021 17:32	LCCC	Abies concolor	white fir	ABCO		14	20	43.3	3	fair	2	poor	50-74	Crown_Clean	Structu
9	Tree	-104.781	41.10244	D2	5/28/2021 16:20	LCCC	Abies concolor	white fir	ABCO		2.75	6	7.5	3	fair	3	fair	75-89	Monitor	Crown
10	Tree	-104.779	41.10276	D2	26:00.0	LCCC	Abies concolor	white fir	ABCO		19	25	39.2	3	fair	3	fair	75-89	Crown_Clean	
11	Tree	-104.784	41.10327	D2	5/26/2021 18:54	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	2	12	3	fair	1	dead	0	Remove	Other
12	Tree	-104.784	41.10321	D2	5/26/2021 18:56	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	2	12	3	fair	1	dead	0	Remove	Other
13	Tree	-104.784	41.10333	D2	5/26/2021 18:51	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	2	12	3	fair	3	fair	75-89	Structural_Prune	Stakes
14	Tree	-104.784	41.10313	D2	5/26/2021 18:58	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	2	12	3	fair	3	fair	75-89	Structural_Prune	Stakes
15	Tree	-104.784	41.103	D2	5/26/2021 19:05	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	3	12	3	fair	3	fair	75-89	Structural_Prune	Crown
16	Tree	-104.783	41.10301	D2	5/26/2021 19:07	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	3	12	3	fair	3	fair	75-89	Structural_Prune	Crown
17	Tree	-104.783	41.103	D2	5/26/2021 19:08	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	3	12	3	fair	3	fair	75-89	Structural_Prune	Crown
18	Tree	-104.783	41.10299	D2	5/26/2021 19:09	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	3	12	3	fair	3	fair	75-89	Structural_Prune	Crown
19	Tree	-104.783	41.10298	D2	10:53.0	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	3	12	3	fair	3	fair	75-89	Structural_Prune	Crown
20	Tree	-104.783	41.10369	D2	5/26/2021 20:44	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	5	11	3	fair	3	fair	75-89	Structural_Prune	Crown
21	Tree	-104.783	41.10371	D2	5/26/2021 20:46	LCCC	Acer negundo	sensation maple	ACNE	sensation	2	7	11	3	fair	3	fair	75-89	Structural_Prune	Crown
22	Tree	-104.784	41.10245	D2	12:17.0	LCCC	Acer tataricum	Tatarian maple	ACTA		4	10	9	2	poor	2	poor	50-74	Crown_Clean	
23	Tree	-104.784	41.10246	D2	09:25.0	LCCC	Acer tataricum	Tatarian maple	ACTA		3	7	8	2	poor	3	fair	75-89	Crown_Clean	
24	Tree	-104.784	41.10352	D2	5/25/2021 17:23	LCCC	Acer tataricum	Tatarian maple	ACTA		5.3	5	7	3	fair	2	poor	50-74	Crown_Clean	Remov
25	Tree	-104.784	41.10248	D2	5/25/2021 17:35	LCCC	Acer tataricum	Tatarian maple	ACTA		6	6	7	3	fair	2	poor	50-74	Crown_Clean	
26	Tree	-104.785	41.1025	D2	41:01.0	LCCC	Acer tataricum	Tatarian maple	ACTA		5	7.5	6.5	3	fair	2	poor	50-74	Crown_Clean	
27	Tree	-104.785	41.10257	D2	5/25/2021 17:45	LCCC	Acer tataricum	Tatarian maple	ACTA		3	5	8	3	fair	2	poor	50-74	Crown_Clean	
28	Tree	-104.783	41.10343	D2	5/26/2021 20:36	LCCC	Acer tataricum	Tatarian maple	ACTA		3	5	10	3	fair	2	poor	50-74	Crown_Clean	Inspec
29	Tree	-104.782	41.10361	D2	5/26/2021 20:49	LCCC	Acer tataricum	Tatarian maple	ACTA		3	5	11	3	fair	2	poor	50-74	Crown_Clean	Structu
30	Tree	-104.782	41.10341	D2	5/26/2021 21:07	LCCC	Acer tataricum	Tatarian maple	ACTA		3	5	10	3	fair	2	poor	50-74	Inspection_Needed	Remov

iTreeEcolport Extract_Data_May_30_2021_5_30

i-Tree Ecosystem Analysis

LCCC_iTreeAcademy_FinalProject

t



Urban Forest Effects and Values
May 2021



Summary

Understanding an urban forest's structure, function and value can promote management decisions that will improve human health and environmental quality. An assessment of the vegetation structure, function, and value of the LCCC_iTreeAcademy_FinalProject urban forest was conducted during 2021. Data from 359 trees located throughout LCCC_iTreeAcademy_FinalProject were analyzed using the i-Tree Eco model developed by the U.S. Forest Service, Northern Research Station.

- Number of trees: 359
- Tree Cover: 1.464 acres
- Most common species of trees: Austrian pine, Blue spruce, Russian olive
- Percentage of trees less than 6" (15.2 cm) diameter: 47.6%
- Pollution Removal: 79.85 pounds/year (\$354/year)
- Carbon Storage: 60.81 tons (\$10.4 thousand)
- Carbon Sequestration: 1.195 tons (\$204/year)
- Oxygen Production: 3.187 tons/year
- Avoided Runoff: 2.257 thousand cubic feet/year (\$151/year)
- Building energy savings: N/A – data not collected
- Avoided carbon emissions: N/A – data not collected
- Structural values: \$492 thousand

Ton: short ton (U.S.) (2,000 lbs)

Monetary values \$ are reported in US Dollars throughout the report except where noted.
Ecosystem service estimates are reported for trees.

For an overview of i-Tree Eco methodology, see Appendix I. Data collection quality is determined by the local data collectors, over which i-Tree has no control.



MyTree Benefits



LCCC_RAC_Buckeye: buckeye spp. (*Aesculus*)

Serving Size: 10.10 in. diameter
Condition: Poor
Total benefits for this year: \$5.67

Carbon Dioxide (CO₂) Sequestered \$1.16

Annual CO₂ equivalent of carbon¹ 49.79 lbs

Storm Water Runoff Avoided \$0.48

Runoff Avoided 53.74 gal

Rainfall Intercepted 418.1 gal

Air Pollution Removed Each Year \$1.61

Carbon Monoxide < 0.1 oz

Ozone 4.93 oz

Nitrogen Dioxide 0.2 oz

Sulfur Dioxide < 0.1 oz

PM_{2.5} 0.17 oz

Energy Usage Per Year² \$1.85

Electricity Savings (A/C) 64.38 kWh

Fuel Savings (natural gas, oil) -0.59 MMBtu

Avoided Energy Emissions \$0.57

Carbon Dioxide 3.69 lbs

Carbon Monoxide 0.59 oz

Nitrogen Dioxide < 0.1 oz

Sulfur Dioxide 0.46 oz

PM_{2.5} 0.8 oz

CO₂ Stored To Date³ \$68.94

Lifetime CO₂ equivalent of carbon³
2,964.46 lbs



MyTree Benefits



ScotsPine_LCCCRCAC: Scots pine, (*Pinus sylvestris*)

Serving Size: 18.10 in. diameter
Condition: Poor
Total benefits for this year: \$14.97

Carbon Dioxide (CO₂) Sequestered \$1.30

Annual CO₂ equivalent of carbon¹ 55.99 lbs

Storm Water Runoff Avoided \$1.11

Runoff Avoided 124.68 gal

Rainfall Intercepted 969.93 gal

Air Pollution Removed Each Year \$6.07

Carbon Monoxide < 0.1 oz

Ozone 20.6 oz

Nitrogen Dioxide 1.02 oz

Sulfur Dioxide 0.3 oz

PM_{2.5} 0.62 oz

Energy Usage Per Year² \$4.64

Electricity Savings (A/C) 103.98 kWh

Fuel Savings (natural gas, oil) -0.76 MMBtu

Avoided Energy Emissions \$1.85

Carbon Dioxide 13.84 lbs

Carbon Monoxide 1.06 oz

Nitrogen Dioxide 0.31 oz

Sulfur Dioxide 1.72 oz

PM_{2.5} 1.29 oz

CO₂ Stored To Date³ \$77.40

Lifetime CO₂ equivalent of carbon³
3,328.19 lbs



MyTree Benefits



Tree Collection Totals

Serving Size: 3 trees

Total benefits for this year: \$49.64

Carbon Dioxide (CO₂) Sequestered \$22.34

Annual CO₂ equivalent of carbon¹ 960.76 lbs

Storm Water Runoff Avoided \$4.82

Runoff Avoided 539.43 gal

Rainfall Intercepted 4,196.56 gal

Air Pollution Removed Each Year \$16.17

Carbon Monoxide 0.13 oz

Ozone 41.97 oz

Nitrogen Dioxide 1.74 oz

Sulfur Dioxide 0.71 oz

PM_{2.5} 1.87 oz

Energy Usage Per Year² \$4.79

Electricity Savings (A/C) 160.51 kWh

Fuel Savings (natural gas, oil) -1.44 MMBtu

Avoided Energy Emissions \$1.52

Carbon Dioxide 10.02 lbs

Carbon Monoxide 1.48 oz

Nitrogen Dioxide 0.22 oz

Sulfur Dioxide 1.24 oz

PM_{2.5} 1.99 oz

CO₂ Stored To Date³ \$1,582.87

Lifetime CO₂ equivalent of carbon³
68,059.3 lbs

Current Species Diversity

- 12 Families
- 17 Genus
- 26 species + additional cultivars (fruits)

I. Tree Characteristics of the Urban Forest

The urban forest of LCCC_iTreeAcademy_FinalProject has 359 trees with a tree cover of Austrian pine. The three most common species are Austrian pine (21.4 percent), Blue spruce (14.5 percent), and Russian olive (10.0 percent).

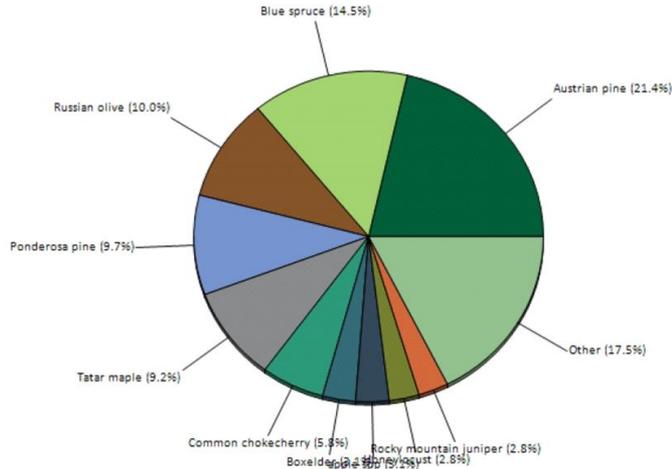


Figure 1. Tree species composition in LCCC_iTreeAcademy_FinalProject

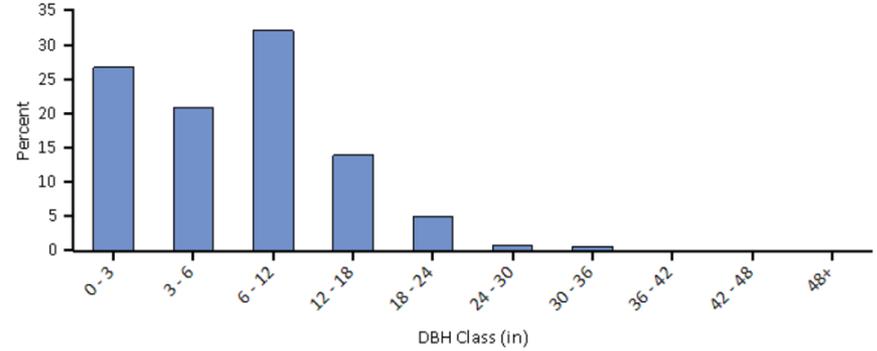


Figure 3. Percent of tree population by diameter class (DBH - stem diameter at 4.5 feet)

Table 1. Most important species in LCCC_iTreeAcademy_FinalProject

Species Name	Percent Population	Percent Leaf Area	IV
Blue spruce	14.5	24.4	38.9
Austrian pine	21.4	13.6	35.1
Russian olive	10.0	14.4	24.4
Ponderosa pine	9.7	12.5	22.3
Tatar maple	9.2	1.4	10.6
Common chokecherry	5.8	2.5	8.3
cottonwood spp	0.8	6.6	7.5
White fir	2.2	3.7	5.9
Rocky mountain juniper	2.8	2.9	5.6
Pinyon pine	2.8	2.5	5.2

Trees Recommended by i-Tree Species

This is a list of the top 10% of tree species based on the following functions.

Generated: 5/31/2021

Location: Cheyenne, Wyoming, United States of America

Hardiness: 5

Constraints:

- Minimum Height: 20 feet
- Maximum Height: 75 feet

Air Pollutant Removal (0-10 Importance)

- Overall: 10

Other Functions (0-10 Importance)

- Low VOC: 4
- Carbon Storage: 10
- Wind Reduction: 10
- Air Temperature Reduction: 5
- UV Radiation Reduction: 10
- Building Energy Reduction: 5
- Streamflow Reduction: 3
- Low Allergenicity: 10

Species		
Scientific Name	Common Name	Hardiness Zone
TSUGA MERTENSIANA	MOUNTAIN HEMLOCK	5 ~ 7
TSUGA CANADENSIS	EASTERN HEMLOCK	4 ~ 7
PICEA ABIES	NORWAY SPRUCE	3 ~ 7
TSUGA X JEFFREYI	JEFFREY HEMLOCK	5 ~ 7**
TSUGA CAROLINIANA	CAROLINA HEMLOCK	4 ~ 7
LIRIODENDRON CHINENSE	CHINESE TULIP TREE	5 ~ 9**
MAGNOLIA ACUMINATA	CUCUMBER TREE	4 ~ 8
PSEUDOTSUGA MACROCARPA	BIGCONE DOUGLAS FIR	4 ~ 6
TILIA PLATYPHYLLOS	BIGLEAF LINDEN	4 ~ 6
ABIES CONCOLOR	WHITE FIR	4 ~ 7
ABIES HOLOPHYLLA	MANCHURIAN FIR	3 ~ 7
FRAXINUS AMERICANA	WHITE ASH	4 ~ 9
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	4 ~ 6
ACER RUBRUM	RED MAPLE	4 ~ 10
PINUS MONTICOLA	WESTERN WHITE PINE	5 ~ 8
LARIX LARICINA	TAMARACK	2 ~ 5
PINUS JEFFREYI	JEFFERY PINE	5 ~ 8
FRAXINUS EXCELSIOR	EUROPEAN ASH	5 ~ 8
PINUS STROBUS	EASTERN WHITE PINE	4 ~ 7
LARIX DECIDUA	EUROPEAN LARCH	3 ~ 6
AESCULUS HIPPOCASTANUM	HORSECHESTNUT	4 ~ 7
PLATANUS HYBRIDA	LONDON PLANETREE	5 ~ 8*
ACER X FREEMANII	FREEMAN MAPLE	4 ~ 8
FAGUS GRANDIFOLIA	AMERICAN BEECH	4 ~ 8
CELTIS OCCIDENTALIS	NORTHERN HACKBERRY	3 ~ 9
ACER PLATANOIDES	NORWAY MAPLE	4 ~ 7
PICEA KORAIENSIS	KOREAN SPRUCE	4 ~ 7**
BETULA PAPYRIFERA	PAPER BIRCH	3 ~ 6
PRUNUS SEROTINA	BLACK CHERRY	4 ~ 9
ACER SACCHARINUM	SILVER MAPLE	3 ~ 9
ACER PSEUDOPLATANUS	SYCAMORE MAPLE	5 ~ 7
AESCULUS FLAVA	YELLOW BUCKEYE	4 ~ 8
PICEA BICOLOR	ALCOCK SPRUCE	4 ~ 7**
TILIA TOMENTOSA	SILVER LINDEN	5 ~ 7
PINUS DENSIFLORA	JAPANESE RED PINE	4 ~ 7
PICEA ABIES X ASPERATA	NORWAY X CHINESE SPRUCE	2 ~ 7
TILIA CORDATA	LITTLELEAF LINDEN	4 ~ 7
METASEQUOIA GLYPTOSTROBODES	DAWN REDWOOD	5 ~ 8*
JUGLANS NIGRA	BLACK WALNUT	4 ~ 9

Take Home Points

Finish inventory data collection

- Reimport complete inventory
- Encourage/improve species diversity with planting projects
- Russian olive is doing a lot of the heavy lifting in this current dataset.
- But... this is only part of the data collection!

Potential future project

- Recreate database for inventory data collection



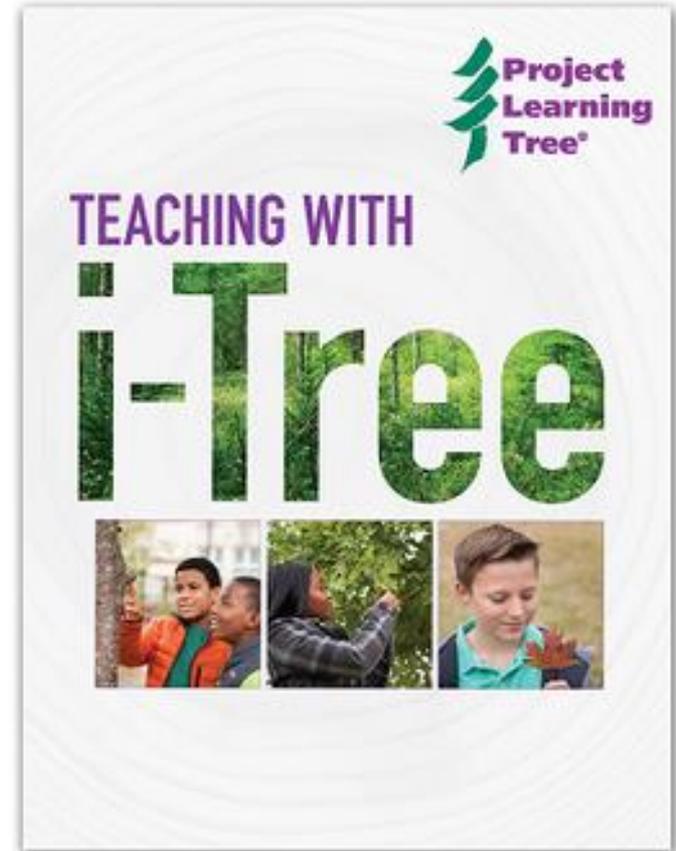


Trainings

Training Materials

Project Learning Tree

- Teaching with iTree
 - iTree Design
 - iTree Species



STUDENT PAGE HOW TO USE i-TREE DESIGN

On a computer, navigate to <https://design.i-treetools.org/>. Enter your school address or the specific address of the area you are studying (including the street address and city). A pop-up dialog box will appear to confirm the address.



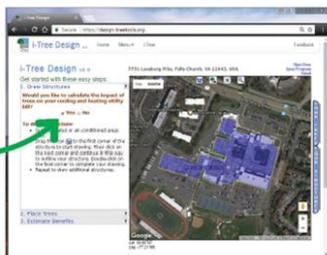
1. DRAW STRUCTURE

Trees affect the heating and cooling costs associated with a building by modifying climate, producing shade, and reducing wind speeds. These effects depend on the species, size, and location of a tree. On the next screen, you will be asked, "Would you like to calculate the impact of trees on your cooling and heating utility bill?" Click "Yes."

You will then be instructed to "draw" the building structure. Basically, this means outlining the building. When you draw a structure, outline heated or air-conditioned areas only because trees have no effect on energy use in structures that are not heated or cooled, such as unheated garages.

To draw a structure:

- Zoom in as needed.
- Drag this icon  to the first corner of the structure to start drawing.
- Click on the next corner, moving around the perimeter of the building in one direction. Continue in this way to outline your structure.
- **Double-click** on the final corner to complete your drawing.
- Select characteristics about the structure in the "house information" pop up.
- Repeat to draw additional structures.



View/Delete trees.



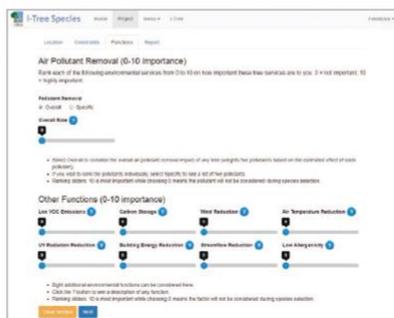
STUDENT PAGE HOW TO USE i-TREE SPECIES

i-Tree Species is a free online tool that can be used to select the most appropriate tree species to plant in order to receive specific environmental benefits. Users select and rank the importance (0-10) of each environmental service desired from trees. The program then calculates the best tree species to plant, based on geographic area and weighting of environmental benefits.

1. On a computer, navigate to <https://species.i-treetools.org/>; click "Get Started," enter your location information, and then click "Next." The "Height Constraints" page is optional. It can be used to indicate minimum and maximum heights of a mature tree. If appropriate, enter that data, otherwise, navigate to the next screen.



2. Slide the blue circles to indicate the importance of each environmental benefit. Under "Pollutant Removal," select "Specific" if you want to rank five different air pollutants by importance. Once done, click "Next."



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ried Beetle

Winter Moth

Winter Moth

Training Materials

iTree MyTree Infographic

ALL ABOUT iTREE MYTREE

Let's get to know this new and exciting way
to value trees on your mobile device!

iTREE MYTREE 101

This tool is suitable for evaluating a handful of trees on the go! By inputting some quick info about your trees, this tool can estimate the amount of carbon dioxide and pollution it removes from the air, as well as the amount of stormwater it can help mitigate.



MYTREE: GET STARTED

Open an internet browser
Visit <https://itreetools.org>
> tap on "Tools"
> scroll down to the "Core Tools" section
> tap "iTree MyTree"
> tap "Get Started"

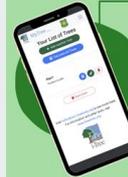
TELL US ABOUT YOUR TREES!

Collect and input the following data:
Location/Address
Tree species (common or scientific name)
Trunk size (diameter or circumference)
Sun exposure
Distance to a building
Building info (year built)
Direction in relation to building (N/E/S/W)
Optional health and pest data



CALCULATE, EDIT, OR ADD TREES!

Finished inputting data?
Need to change previously input data?
Have more trees?
You can now add additional trees!
Calculate, edit, add additional trees!
OR Start Over if needed.
Tap the best option for you.



CALCULATE BENEFITS!

Quick and easy to read benefits calculator shows how much:
Stormwater runoff is avoided
Air pollution is removed each year
Energy usage per year
Avoided energy emissions
Carbon is sequestered to date



SOURCES

• <https://itreetools.org>

ALL ABOUT iTREE MYTREE

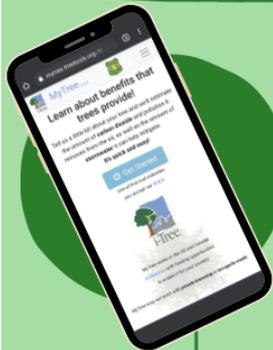
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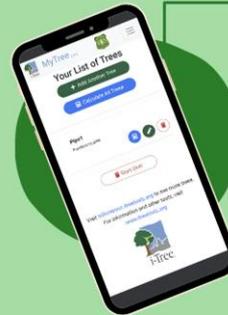
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SOURCES

• <https://itreetools.org>



Thank you!

Questions?

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Wyoming State Forestry Division
tara.costanzo@wyo.gov