



The Virtual Gardener—Mapping Your Yard from Space

Note: Links throughout the article point to illustrations showing each step described.

According to landscape architects and other professional designers the first step in developing a landscape is a plan, and every plan starts with a good base map. The map not only allows you to lay out your designs but also provides a vehicle for recording information about your property that will influence what you can plant and where—for example: sun and shade patterns throughout the seasons, drainage and runoff, wind directions, soils, existing plantings, and underground utilities, just to name a few. But how do you get a map like that? You can spend a lot of money and have a surveyor or other professional draw the map for you or you can do it yourself.

Over the years, I have written several articles on how to create a base map of your yard, but they all involved a lot of work for two or more people using a long measuring tape outside in the yard and required some drafting skills. Ugh!

With a little help from our friends at Google, there is now an easier (and more accurate) way that allows you to create a to-scale map from the comfort of your office using Microsoft Word, Google Maps, and other easily obtainable free software. Although this article focusses on Microsoft Windows computers, those of you using Apple computers should be able to find comparable software to do the same things.

The first step is to go to [Google Maps](#) and locate your property. Using the zoom tool, zoom in as far as you can and center your property on the screen. Now, click on the satellite view in the upper right corner of the map to see an aerial image. The next step is to capture the image and save it in a standard format such as JPEG (.jpg) or Portable Network Graphics (.png). You can use the “Print Screen” key on your keyboard (usually located at the top of the

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COLLEGE OF AGRICULTURE
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Cochise County

Cochise County Cooperative Extension

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keyboard near the right end of the row of function keys) or a screen capture program to do this. Using the Print Screen key will place the image into your computer's clipboard and allow you to paste it into a photo editing program.

After you have captured the image, you need to copy it into an image editing program that will allow you to crop out just the portion of the image that covers the area you want to map. I use Irfan View, a free editor with lots of bells and whistles, but you can use Microsoft Paint if you wish. Any program that will allow you to crop the image will do. Save the cropped image.

Now open your word processor (I use Microsoft Word) and import the cropped image into a document. Adjust the size of the image to make the best possible fit to the document page. When adjusting the size, be sure and use one of the resizing handles on the corner of the image and not the ones on the edges of the image so you don't distort the image. If you use the handles along the middle edges of the image, you will distort it and not be able to use it to create a to-scale map.

The next step is to overlay the image with a rectangular shape. First use the sizing handles on the shape to adjust its size to totally cover the aerial image. This will totally hide the underlying image but have no fear. We can fix that problem. Place your mouse cursor somewhere inside the shape and press the right mouse button. This will bring up a menu that includes an item called "Format Shape...". Select that item and set the background color of the shape to white and its transparency to 100 percent. This allows us to see

through the shape to the underlying image and use it like a piece of tracing paper by using drawing tools to "trace" objects on the underlying image onto the shape. Once we have finished with this, we can reset the transparency property of the shape to zero and see whatever we have traced as if it were drawn on a white piece of paper.

Knowing what is in your yard, it is easy to use the drawing tools in your word processor to create an accurate and scaled map of your yard. I use standard landscape design symbols copied from the Web to show different types of trees. A good (and free!) collection of landscape design symbols can be found at the Sustainable Urban Landscape Information Series website at the University of Minnesota. The symbols are grouped into single images but these can be easily cropped out of the page and saved as separate images with image editing software such as Irfan.

Make any adjustments to your map to clean it up and save the document.

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
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The Mystery Remains

Thanks to the many readers who contributed suggestions on who "dung" it. Coyotes and javelinas have been ruled out because of the six-foot fence enclosing the property. The phantom pooper must be a small animal with climbing ability. Ringtails, raccoons, coatis, and foxes remain as suspects. Fresh scats still appear at different locations and at irregular intervals but so far no tracks have been seen. VG

Cuttings 'N' Clippings

✿ CCMGA will hold its next meeting on **Thursday, May 1**. This will be the graduation celebration picnic for the graduating Master Gardener Class.

✿ **Saturday, May 3**, Water Wise presents *Happy, Healthy Plants Through Integrated Pest Management (IPM)*. IPM is a method of controlling pests through learning about pest lifecycles and their interaction with the environment. Come learn how to apply these principles in your landscape to create a better, safer, and healthier environment in a cost-effective manner. The presenter is Dr. Shaku Nair, UA Maricopa Agriculture Center. The meeting will be held in the Public Meeting Room in Groth Hall, UASV. For information call (520) 458-8278, Ext 2141, or contact Joyce at: jwilliam@ag.arizona.edu. You can visit Water Wise at: waterwise.arizona.edu

Cochise County Master
Gardener Newsletter Editor
Carolyn Gruenhagen

Book Review: *The Alchemy of Air*

When one thinks of important inventions over the history of mankind, things like cars, airplanes, television, refrigeration, or space travel often come to mind. Other candidates might include, say, modern medicine or electricity. But there is an equally important invention that few people even realize happened—the invention of the process of taking nitrogen from the air to create fertilizers and explosives. Thomas Hager's book *The Alchemy of Air* tells this story and lays out the enormous impact that the two men who came up with the process, Fritz Haber and Carl Bosch, had on our world, both for better and for worse.

This is no dull book dryly explaining the nitty-gritty details of an industrial process. It is, instead a fascinating and well told story covering more than a century of history played out on a global stage. It begins with the vigorous trade in bat guano during the mid-nineteenth century. The demand for guano to be used as fertilizer was so high that the U.S. Congress actually passed into law a bill called the Guano Islands Act, which allowed any US citizen to declare as U.S. territory any uninhabited island anywhere in the world. Islands like Midway and Howland, while never really producing any significant amount of guano, became U.S. possessions in this way.

As the supply of guano diminished to essentially nothing, the fortuitous discovery of a vast supply of sodium nitrate in the Atacama desert region high in the Peruvian Andes ensured a supply of a mineral source to take the place of guano. Mines and towns sprang

up in the bone dry, inhospitable high desert to supply the nitrate to a world clamoring for fertilizers and also explosives. War and conflict between Chile and Peru and Peru and Spain occurred over the control of guano and nitrate rich lands.

The early twentieth century saw the demand for nitrate continue, and in Germany in particular, it was recognized that relying on a source of nitrate as distant as South America was not in the national interest. If war arose, the British navy ruled the seas, meaning that Germany would have no source for the materials necessary to make explosives. Enter Fritz Haber, a German scientist. He doggedly pursued the problem of converting atmospheric nitrogen into ammonia, the first step in creating fertilizer and explosives. In 1909, after a few years of working the problem, Haber was successful in creating ammonia from the air. The road to easy, cheap fertilizer and explosives had been started.

The next step was to scale Haber's process up to sufficient scale to produce commercially viable quantities of ammonia. This job fell to a man with a background in chemistry and mechanical engineering, Carl Bosch. Bosch was persistent, as well as being a hands-on tinkerer. He worked for several years to make the ammonia process viable. He was successful and his ammonia factory was a key to Germany during WWI. Haber was awarded the Nobel Prize in 1909 and Bosch was awarded his own Nobel in 1931.

Haber was also a key man in the German poison gas effort, producing the chlorine gas used by the German army during WWI. Haber's wife, Clara, a trained chemist, killed herself over her husband's

involvement in the poison gas effort. Despite Haber's contributions to the German war effort, the fact that he was of Jewish heritage destroyed him during the Hitler years. Haber died in 1937, Bosch in 1940. Both men died bitter and full of regrets, but their work sustained the German war machine for the duration of WWII. A giant plant at Leuna, built by Bosch, produced both gasoline and ammonia for the Germans until its destruction by an intense Allied bombing campaign in 1944 and 1945. Leuna was so important to the German war effort that it was more heavily defended against air attack than Berlin. Nearly 1,300 Allied airmen lost their lives in bombing runs over Leuna. Albert Speer is said to have commented that, had the Allies been able to destroy Leuna earlier, the war would have ended within eight weeks.

This book is very well written. It is interesting, educational, very sobering and I highly recommend it. Our library system has one copy of *The Alchemy of Air*. Seek it out. That bag of fertilizer in your shed has an amazingly interesting story behind it.

Bill Schulze, Master Gardener
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May Reminders

- ◆ *Deep water*
- ◆ *Plant warm season crops*
- ◆ *Check tree ties*
- ◆ *Control pests*
- ◆ *Control weeds*

Ask a Master Gardener

Cochise County Master Gardeners are available to answer your gardening questions either by telephone call to the Cooperative Extension Office or on-line on our web site at:

<http://ag.arizona.edu/cochise/mg/question.htm>

The following comes from our web site's Frequently Asked Questions:

Question: When should I plant native warm season grasses and how should I prepare the soil?



Answer: Warm season native grasses include but are not limited to the bluestems, buffalos, grammas, Indian rices, lovegrasses, sideoats, and wheatgrasses. Planting of most of these grasses should occur just before the monsoon begins in July.

Seeding rates vary between different grass species. For example, buffalo grass is seeded at 3 to 4 pounds and blue grama grass is seeded at 1 to 2 pounds per 1,000 square feet. In most situations it is advisable to mix 2 or more compatible species together so there is more diversity in the planting.

For best germination and stand, till the soil 4 to 6 inches deep (this is very necessary on new construction sites because of compacted soil), rake smooth, spread seed, and top dress with compost or composted manure. The dark compost will warm the soil and hold moisture which aids in germination.

Many of these warm season grasses make attractive landscape areas but are not suited to heavy traffic and play. However, breeding programs are currently developing turf type lawn grasses from native warm season grass species that will withstand traffic. Also, many of these grasses are more drought tolerant than the more traditional turf grass and require less water than Bermuda grass.

Raised Bed Gardening In a Small Space Part 1

I took the Cochise County Master Gardener Class in 2010 to find out HOW to grow a garden since I never had attempted gardening before. I live in a trailer park on a small lot and the previous owner bestowed upon me a 15' by 3' raised garden bed! Giving the boards a fresh coat of white paint helped inspire me to see a "blank slate!"

Preparation of the Soil—I knew the soil had been dormant about three years so I decided to sterilize it to get rid of weeds, bugs, and previous plant roots. I put in four 1.5 cubic feet of manure and three 1.5 cubic feet of compost and turned it into the soil. After turning the soil several times, I watered the raised bed for thirty minutes. Then I hand stapled clear heavy duty plastic over the top of the bed. I left a small portion on the side open (for watering) and put a flat rock on it to hold the plastic on the board.

Every week I would take the rock off the plastic and water the soil for about 30 minutes. At the end of two weeks, my soil was consistently 97°F. By the end of six weeks my neighbors were complaining about the smell so I decided it was time to add more soil, fertilizer, and get planting. I removed the plastic and added three 2 cubic feet

bags of garden soil, three more 1.5 cubic feet bags of manure, and finally added 34-0-0 fertilizer and turned the soil over again.


Plants—My recommendation for beginning gardeners like myself is to grow what you like to eat! I chose young plants from my local nursery: Roma, Ace55 and Early Girl for tomatoes; Blue Lake bush beans; crook-neck and zucchini squash 2 plants each; rosemary, basil and sweet mint and Silver Queen sweet corn. After bringing home my plants, I realized I would have to be careful with plant placement since the bed faced southeast and received reflected heat from my RV until 4:00 PM.

Placement—The corn would be the tallest (4-5 feet) and I would want the growing stalks to shade the tomatoes for the afternoon. The corn was set in diagonal rows at the far eastern side of the bed. In the diagonal across I placed the herbs. Before the corn grew tall, the herbs would have plenty of sun to thrive in. In the middle of the bed, I placed four-foot cages around my three small tomato plants. This way, if the heat was too intense, I could use shade cloth around the cages. I also found some nifty Velcro ties to support the stems on their cages as they grew. The four squash plants were placed on the west side of the bed. The bush beans were placed between the squash and tomatoes.

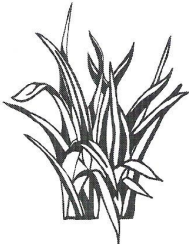
Conclusions and results next month.

Chrissa Link, Master Gardener and winner of a 2014 High Desert Gardening & Landscaping Conference scholarship.

Wettie sez...
BE Water Wise!



If you have turf, use drought tolerant grasses such as buffalo grass, blue grama or bermuda grass.



The U of A Water Wise Program
458-8278, Ext. 2141

At a Glance Box

It's a Bloomin' Cochise County Native Plant of the Month

Plant: Paperflower, *Psilostrophe species*

Description: Perennial

Blooms: Brilliant yellow blooms beginning in early spring

Use: Excellent Xeriscape plant

Culture: Poor soils, low water, full sun.

Learn more: Cochise County Herbarium

www.cochisecountyherbarium.org

For an in-depth article, see below.

Cado Daily

Water Resources Coordinator, Water Wise Program

University of Arizona Cochise County Cooperative Extension



Paperflower *Psilostrophe species*

How would you like a plant that has electric-yellow flowers that attract butterflies, has a long bloom period, should not be on irrigation, is soft, is locally native and when the flowers are finished stay on the plant like a dried flower arrangement?

Two perennials in the same genus that stand out as great flowers for xeric landscapes are the paperflowers *Psilostrophe tagetina* and *Psilostrophe cooperi*. The *P. tagetina* is commonly known as a woolly paperflower, and the *P. cooperi* is often called whitestem paperflower or paper daisy. These plants are remarkably similar and both provide a brilliant yellow bouquet with delicate flowers on light green woolly stalks.

Herbarium specimens show that both these *Psilostrophe* species are native throughout the American

southwest in the eastern portion of the Mohave Desert, parts of the Sonoran and Chihuahuan Deserts, and into the north Mexican states of Chihuahua and Nuevo León (to see U.S. state and county distributions, visit the USDA Plants Database at www.plants.usda.gov).

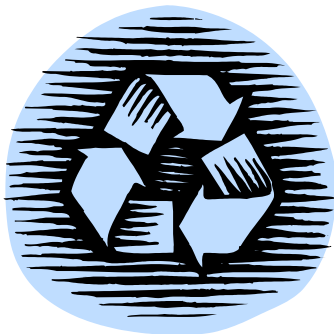
Paperflowers need excellent drainage, are mostly xerophytic and typically found on mesas and plains. The *tagetina* species lives at elevations of 4,000 to 7,000 feet and in the pine forests of northern Arizona whereas the *cooperi* species prefers the lower elevations of 2,000 to 5,000 feet. They like to grow in full sun and with low water, which is good news to desert landscapers (keep them off the irrigation line!)

P. tagetina and *P. cooperi* have stems and leaves that are woolly and white respectively. The covering of short, soft matted hairs (tomentum) varies between the species. Whether the tomentum is

pannose (dense) or not (sounds like a mysterious meal in a fancy Italian restaurant “Sure! I’d love some pannose on my tomentum!”) both plants are soft to touch which is a nice tactile as well as visual relief from all the gnarly plants in the southwest.

The paperflower also lives up to its name. When the cheery yellow flowers die, they don’t wither into a crusty brown mass, instead they keep their upright shape and fade to a soft pale paper-thin yellow. It is getting two for the price of one! They provide bold brilliant spring through fall blooms, with demure paper flowers in-between. If you are lucky, you may get a year-round bloom from the *P. cooperi*. This double-duty characteristic of holding colorful dried flowers on the stalk makes the use of this plant in a landscape even more desirable.

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The *Psilostrophe* genus is perennial (rarely biennial). *P. cooperi* grows to about 2 feet in height and the *P. tagetina* to 18" and about as wide. The disk flowers pop up above the big petals presenting themselves with ease to passing butterflies. In my garden, I find that the paperflower is a short-lived perennial, but another plant soon shows up nearby to replace it.

Tuck these beauties among scarlet autumn sages (*Salvia greggii*), to get that great red-yellow combination zap when blooming or plant them in your desert zone to spice up ocotillo (which look like red-tipped matchsticks right now with gorgeous red blossoms), prickly pears, and agaves.

Cado Daily, M.A.
Water Resources Coordinator

FOR THE GARDEN OF YOUR DAILY LIVING

PLANT THREE ROWS OF PEAS:

1. Peace of mind
2. Peace of heart
3. Peace of soul

PLANT FOUR ROWS OF SQUASH:

1. Squash gossip
2. Squash indifference
3. Squash grumbling
4. Squash selfishness

PLANT FOUR ROWS OF LETTUCE:

1. Lettuce be faithful
2. Lettuce be kind
3. Lettuce be patient
4. Lettuce really love one another

NO GARDEN IS WITHOUT TURNIPS:

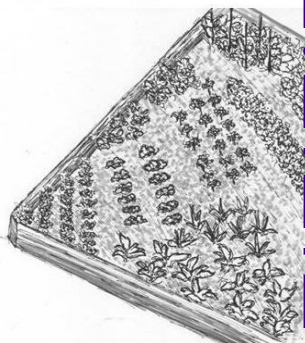
1. Turnip for meetings
2. Turnip for service
3. Turnip to help one another

TO CONCLUDE OUR GARDEN WE MUST HAVE THYME:


1. Thyme for each other
2. Thyme for family
3. Thyme for friends

WATER FREELY WITH PATIENCE AND CULTIVATE WITH LOVE.

-author unknown



Safely Dispose and Recycle Hazardous Materials - City of Sierra Vista

Scrap metal (not including steel, tin, or iron) Aluminum	A&T Metals 120 N. 6th Street 459-3381	
Batteries (including rechargeable cell phone batteries)	Ace Hardware 3756 E. Fry Boulevard 458-3650 Batteries Plus 2185 E. Fry Boulevard 459-1778 Radio Shack 2200 El Mercado Loop 459-4919	
Home phones, cell phones, batteries (including laptop batteries), TVs & appliances (fees may apply), computers, printers & electronics (2 items per day per household; fees may apply)	Best Buy 2200 El Mercado Loop 417-1002 http://origin-stores.bestbuy.com/1077/	
Plastic Bags 	Food City 85 S. Highway 92 439-6080 Wal-Mart 500 N. Highway 90 Bypass 458-8790 Lowes 3700 Martin Luther King Jr. Parkway 439-3640 Target 4151 E. Highway 90 452-0035	Fry's Food & Drug Store 4351 E. Highway 90 458-0989 Safeway Supermarket 2190 E. Fry Boulevard 459-4204 (use bin near Deli area)
Fluorescent lightbulbs CFL lightbulbs Batteries for power tools only	Home Depot 3500 W. Avenida Cochise 439-2806	
Computers, printers, and office technology products (fees may apply), personal electronics (including digital cameras), ink and toner cartridges, cell phone batteries, rechargeable batteries	Staples Store 4299 E. Highway 90 452-1000 www.staples.com	
Rechargeable batteries, cell phones and accessories	Verizon Wireless 2290 E. Fry Boulevard 417-1143 www.verizonwireless.com	
Paper products: Corrugated cardboard, magazines, newspapers, office paper, shredded paper, phone books, chipboard (cereal boxes, shoe boxes, etc.) E-Waste: cell phones, computer components, entertainment equipment Plastics: #1 and #2 bottles and jugs Other: Aluminum cans, tin cans, lead-acid batteries, motor oil & filters, household paints, tires (limit 5), construction debris, antifreeze	Cochise County Highway 90/Mile Post 325 452-9805	
Car batteries, used oil	Jack Furrier Tire 458-7580 Sears 226-0384 Autozone 459-6080	Napa Auto Parts 458-1713 Oil Can Henry's 459-5171 O'Reilly Auto Parts 417-1541
Glass	Pedro Castro Maintenance Center 401 Giulio Cesare Avenue 458-5775	
Medications No sharps or liquids; must be in original containers	Sierra Vista Police Department lobby 911 N. Coronado Drive 452-7500 Fire Station #1 1295 E Fry Boulevard 458-3319 Fire Station #3 675 Giulio Cesare Avenue 417-4400	Fire Station #2 10 N Lenzner Avenue 452-7075



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