resent a wide range of native grasses, sedges and forbs.

For all but two species, plugs of 2.25" x 2.25" were planted. In the full-sun installations at each course, plots 2' x 3' were planted with three plants each of the 30 species of native plants. The exceptions were U of I sand bluestem, in which case only one plant was planted per plot, and vanillagrass, in which case two plants were planted per plot. The plots were replicated three times. In the partial shade, three to five plugs of each species were grouped and planted. The partial-shade plots were not replicated. Plantings at each site were irrigated as necessary to ensure establishment.

At each site, plantings were handled differently. At Cantigny Golf Club, the full-sun area was planted into the far rough on July 2 and 3. Site preparations included removal of the existing vegetation (mostly cool-season grasses) to 1" using a string trimmer. In the partial shade, an area was treated with glyphosate and three plugs of each species were planted on July 18.

At Olympia Fields Country Club, both the full-sun and open-shade test areas were planted on July 11. The full-sun site was mowed to 2", rotary-tilled to an approximate depth of 5" and planted. Following planting of the site, treflan (Preen) was broadcast at the labeled rate to deter invasion of annual grasses and broad-leaved weeds. In the open shade, five plugs of each species were grouped and planted into the existing vegetation.

At Skokie Country Club, both the full-sun and open-shade sites were planted on July 23. Both the full-sun and partial-shade settings were treated with glyphosate and mowed to less than 2" prior to planting.

During visits to each course through 1998 and 1999, plant information was collected (flowering period, aesthetic value, height and shape). At the conclusion of the 1998 growing season, the collected data were compiled and a rating scale was developed. This rating scale is based on the collected data and the horticultural judgment of the principal investiga-

planted on July 18. lected data and the norticulitural judgment of the principal investiga-

Superintendent Don Cross (Skokie Country Club) checks on shade natives shortly after planting.

Compared with mowed out-of-play portions of courses, areas planted to native species require reduced management inputs, create wildlife habitat and enhance the golfing experience.

tor. Here, aesthetic value (AV) was ranked using a 3-point scale in which 3 =an extremely attractive plant, 2 = a plant with desirable, but less showy, aesthetic characteristics, and 1 = a plant not worth establishing based on its appearance. The 1998 rating scale was also applied to the collected evaluations in 1999. The 1998 and 1999 ratings were averaged to produce a list of desirable native plants. A mean AV of 2 or 3 indicates a plant that may be of great enough aesthetic value for recommending at other Chicago-area sites.

It is important to note that the aesthetic values assigned to these species are both plant- and context-related. Plant performance is certainly related to the specific growing conditions at each golf course, management, deer browse, exotic weed competition or other episodic factors. Some of these plants assigned an AV of I in this study may improve to an AV of 2 or 3 when grown elsewhere. Thus, the aesthetic values in Tables 1 and 2 should be regarded as provisional and circumstance-specific.

(continued on page 12)

Aesthetic value was recorded during visits to each site during the second and third years of this study. Observations and results from the full-sun and partial-shade areas are presented in Tables 1 and 2 (see pages 13 Each table lists the thru 16). scientific and common names of the native species at the three sites, plant heights, comments about each plant, 1998 and 1999 ratings of aesthetic appeal, and a mean aesthetic value (AV) rating. A differential trend in plant aesthetic value and establishment and management methods became obvious during 1998 and continued into 1999.

First, differences in plant AV were identified. Generally, plants receiving a 3 performed well in both years at all three sites, and plants receiving a mean AV of 2.5 in the full-sun plots also performed well. Several additional plants received a mean AV of 2 in the full-sun plots because of attractive flowers and/or foliage, but these plants were less uniformly reliable at all sites than those rated more highly.

In the partial-shade plots, plants having an average AV of 3 produced attractive flowers at all three sites in both years, while plants receiving an aesthetic value of 2 in the partial-shade produced attractive flowers or foliage, but may not have performed equally well at each site.

Establishment methods appeared to be related to plant performance, as was regrowth of existing species and invasion of weeds. In the full-sun plantings, plant performance was superior at Olympia Fields when compared with the plots at Cantigny or Skokie, and there was less weed invasion into the plots. Because the existing vegetation was only

trimmed to 1" prior to planting the natives in the full-sun plots at Cantigny, competition resulting from regrowth of the existing plants was expected. Natives at Olympia Fields were generally larger and more robust than those at Cantigny, where competition from existing plants was greater. In 1999, for example, U of I sand bluestem at Olympia Fields reached nearly 7' in height and was many-stemmed. The same species at Cantigny was shorter (approximately 5') and developed a much smaller clump diameter. By the end of the 1999 growing season, many of the full-sun plots at Cantigny were taken over by the Canada thistle.

The herbicide-treated coolseason grasses appeared as though they were only damaged to the ground in 1997; regrowth occurred from underground portions of the grasses in 1998 and 1999 at Skokie. Following treatment with glyphosate in 1997, the full-sun natives at Skokie performed similarly to those planted at Olympia Fields where the site was rotary-tilled and treated with Preen after planting. Regrowth of many cool-season perennial grasses (particularly bentgrasses) at Skokie occurred during 1998 and continued during 1999, and it can be speculated that competition reduced the size and attractiveness of the plants in the evaluation.

Invasion of exotic weed species into the full-sun test sites continues to be the greatest threat to success with unmowed native plantings on golf courses. Broadleaf weeds, including chicory, Canada thistle and wild carrot, and grassy weeds such as foxtail, bentgrass, redtop, meadow fescue, quackgrass and reed canary grass, have appeared in unmowed areas at these courses and others in the Chicago area.

Future studies should be designed to evaluate chemical, mechanical and other (e.g., fallow and plowing treatments prior to planting or annual burns) weed-control methods in native plantings. In addition, aesthetic evaluation in golf course settings of other native grasses, sedges and forbs should continue as plants become commercially available.



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Nodding wild rye (Elymus canadensis) is sometimes used as a nurse plant in prairie establishment.

Table 1.

1998 and 1999 aesthetic values (AV) of native plants established in full sun at three Chicago-area golf courses

in ful	l sun at three Chicago-area golf courses	1998 AV	1999 AV	MEAN
Allium cernuum, Nodding Wild Onion (2-3)	Drooping white pink flowers on upright stems in mid-to-late summer; spreading habit	3	3	3
Andropogon hallii cv. U. I., U of I Sand Bluestem (4-7)	Upright warm-season grass with rusty bronze fall color; late summer turkey-foot shaped inflorescences	2	3	2.5
Asclepias incarnata, Swamp Milkweed (4)	Attractive pink flowers in midsummer; upright, shrub-like growth	3	1	2
Aster azureus , Sky-blue Aster (2)	Inconspicuous small pale blue flowers in late summer to early autumn	1	1	1
Bouteloua curtipendula, Side-oats Grama (3)	Bunch-type, warm-season grass; blue-green medium- textured foliage; did not compete well with taller plants	2	1	1.5
Bromus kalmii, Prairie Brome (2)	Cool-season grass; drooping seed heads; pale blue-green foliage; not competitive with other plants in study	1	1	1
Carex atherodes, Hairy-leaved Lake Sedge (1-3)	Spreading coarse-textured sedge; yellow-green flowers in late spring; yellow-green foliage; invasive in moist areas by rhizomes; not showy, but can cover a great deal of ground	1	1	1
Carex bicknelli, Copper-shouldered Oval Sedge (1-2)	Subtly attractive yellow-gold inflorescences in early summer; medium-green foliage; sprawling habit	1	1	1
Carex crus-corvi, Crowfoot Fox Sedge (1)	Yellowish golden-brown inflorescences in early summer; generally unattractive	1	1	1
Coreopsis palmata, Prairie Coreopsis (2)	Moderately showy yellow flowers in early-to-mid summer; bright green fine-textured foliage	1	1	1
Coreopsis tripteris, Tall Coreopsis (4-6)	Small yellow flowers in late summer of modest appeal; upright growth habit; dull medium-green foliage	1	2	1.5
Deschampsia caespitosa, Tufted Hair Grass (1.5-4)	Cool-season grass; attractive dark green tufted foliage; silver-green panicles fade to golden brown and persist through summer	2	2	2
Desmodium canadense, Showy Ticktrefoil (1-3)	Showy, pale pink-purple pea-shaped flowers in midsummer; upright growth habit	2	1	1.5
Elymus canadensis, Canadian Wild Rye (4)	Cool-season grass with large, nodding, foxtail-like seedheads; turns brown in midsummer; can be invasive because of self-seeding into open areas; a pioneer species suitable for use in prairie restoration	1	1	1
Eryngium yuccifolium, Rattlesnake Master (4-6)	Interesting silvery greenish-white ball-shaped inflorescences in midsummer; foliage gray-green and yucca-like; upright growth habit	2	3	2.5
Heliopsis helianthoides, False Sunflower (3-4)	Showy butter yellow disk and ray flowers in early-to-mid summer; upright habit; reliable performer	3	3	3
			con	tinued

Table 1. (continued from page 13) 1998 and 1999 aesthetic values (AV) of native plants established in full sun at three Chicago-area golf courses

ENTRY (HEIGHT IN FEET)	COMMENTS	1998 AV	1999 AV	MEAN AV
Hierochloe odorata, Vanilla Grass (0.5-1.5)	Unattractive spreading cool-season grass; panicles formed in early-to-mid spring; suited to cool, moist-to-wet sites	1	1	1
Iris virginica var. shrevei, Blue Flag (2-3)	Pale blue flowers in spring; spreading upright fans of dull gray green foliage; not competitive	2	1	1.5
Koeleria cristata June Grass (1-2.5)	Cool-season upright-growing grass; spikes emerge silver-green in late spring, becoming golden and then dirty brown; disappeared from most plots	1	1	1
Liatris aspera Rough Blazing Star (2-4)	Purple flowers on upright stems in late summer; plants are upright, but may topple over	3	1	2
Lythrum alatum Winged Loosestrife (1-2)	Small purple flowers in midsummer; upright grower; fine-textured foliage; too short to be showy	2	2	2
Monarda fistulosa Wild Bergamot (3-4)	Pale purple flowers in early-to-mid summer; upright growing; bright green hairy foliage	2	2	2
Penstemom digitalis Foxglove Beard Tongue (3)	Attractive white flowers in late spring and early summer; spreading plant; glossy green foliage sometimes becomes reddish in autumn	2	3	2.5
Pycnanthemum virginianum Common Mountain Mint (3)	Masses of dense white inflorescences in early-to-mid summer; upright bushy plant with fine-textured medium-green foliage	2	3	2.5
Ratibida pinnata Yellow Coneflower (3-5)	Yellow ray flowers with green-gold cone in midsum- mer; medium-green foliage	3	2	2.5
Sanguisorba canadensis American Burnet (2)	Interesting white spikes in late summer on low- growing, spreading plants; inconspicuous	2	1	1.5
Silphium terebinthinaceum Prairie Dock (1-6)	Yellow disk and ray flowers sit atop long stems above large, oval foliage rosettes; foliage is unattractive	1	1	1
Solidago rigida Stiff Goldenrod (3-6)	Upright growth habit; bright yellow inflorescences in late summer	3	2	2.5
Vernonia fasciculata Common Ironweed (3-4)	Dark purple inflorescences; shrublike upright growth habit	3	3	3
Veronicastrum virginicum Culver's Root (3)	Spirelike white inflorescences in early-to-mid summer; upright growth habit	3	3	3

Table 2.

1998 and 1999 aesthetic values (AV) of native plants established in partial shade at three Chicago-area golf courses

ENTRY (HEIGHT IN FEET)	al shade at three Chicago-area golf courses COMMENTS	1998 AV	1999 AV	MEAN
Allium cernuum Nodding Wild Onion (1.5-2.5)	Drooping white pink flowers on upright stems in mid-to-late summer, spreading habit; flowered acceptably in both sun and shade	3	3	3
Aster macrophyllus Big-leaved Aster (1-2)	Medium-green foliage; upright growth habit; inconspicuous white ray flowers with yellow disk flowers; clump enlarging	1	1	1
Aster novae-angliae New England Aster (1-4)	Purple ray flowers with golden disk flowers; generally more attractive in full sun than in filtered shade; clump enlarging	2	2	2
Carex crinita, Fringed Sedge (1-2)	Yellow-green branched foliage; unattractive	1	1	1
Carex frankii Bristly Cattail Sedge (1-2)	Vase-shaped habit; medium-textured, dull yellow- green foliage; yellow-green flowers	1	1	1
Carex grayi Common Bur Sedge (1-2.5)	Tufted habit; coarse yellow-green foliage; burr-like inflorescence; unattractive	1	1	1
Carex muskingumensis Swamp Oval Sedge (1-2)	Medium-texture, yellow-green foliage of little appeal; uninteresting flowers in early summer; unattractive overall	1	1	1
Carex pensylvanica Common Oak Sedge (0.5-1)	Low-growing, fine-textured sedge; may be useful when massed as ground cover in light shade; copper-brown flowers	2	2	2
Carex radiata Straight-styled Wood Sedge (0.5-1)	Tufted; fine-textured; inconspicuous yellow-green flowers in early summer; can be used in masses as attractive ground cover	2	2	2
Deschampsia caespitosa Tufted Hair Grass (1.5-3)	Cool-season grass; dark green tufted foliage; silver-green panicles fade to golden brown	2	2	2
Diarrhena americana Beak Grass (1.5-3)	Coarse-textured, dark yellow-green foliage; interesting beak-shaped flowers in late summer; has leaf spot early in season	1	1	1
Dodecatheon meadia Shooting Star (1-15)	Attractive drooping white flowers in mid-spring; rosette-shaped foliage disappears in early summer	2	1	1.5
Elymus riparius Riverbank Wild Rye (2-4)	Upright growing; foxtail-like green flowers in mid- summer becoming tan-brown by early autumn; spreading growth; tolerates shade well	1	1	1
Elymus villosus Silky Wild Rye (2-3)	Upright growing; foxtail-like green flowers in midsummer that become tan-brown by early autumn; spreading growth	1	1	1
Elymus virginicus Virginia Wild Rye (2-3)	Upright growth habit; foxtail-like green flowers in midsummer that become brown by early autumn	1	1	1
Eupatorium purpureum Purple Joe Pye Weed (1-4)	Pale dirty-purple flowers in late summer; upright growth habit; yellow-green foliage	1	2	1.5
Festuca obtusa Nodding Fescue (1-1.5)	Ephemeral grass flowering in spring and disappearing by early summer; disappeared from all sites after first growing season	1	1	1
		THE STATE OF THE S	cont	inued

Table 2. (continued from page 15) 1998 and 1999 aesthetic values (AV) of native plants established in partial shade at three Chicago-area golf courses

ENTRY (HEIGHT IN FEET)	COMMENTS	1998 AV	1999 AV	MEAN
Hystrix patula Bottlebrush Grass (2-3)	Long-awned florets clustered at culm apex in mid- summer becoming tan at maturity; upright growth habit; tolerates shade well	2	2	2
Iris virginica var. shrevei Blue Flag (2-3)	Pale blue flowers in spring; spreading upright fans of dull gray-green foliage	2	2	2
Juneus tenuis Path Rush (0.5-1)	Fine-textured upright tufts of yellow-green leaves; yellow-green flowers in early summer; declined by late summer	1	2	1.5
Lobelia siphilitica Great Blue Lobelia (2-3)	Attractive medium-blue flowers on spikes; yellow-green foliage; upright grower; self-seeded into other plot areas	3	3	3
Phlox divaricata Blue Phlox (0.5-1)	Spring-blooming blue-purple flowers; foliage disappears during summer, reappears as temperatures cool in autumn; most attractive when viewed from a short distance	2	2	2
Rudbeckia triloba Brown-eyed Susan (3)	Vigorous late-summer blooms of golden ray flowers and brown disk flowers; upright growth habit, bien- nial life cycle; seedlings present in 1999	3	1	2
Solidago flexicaulis Broad-Leaved Goldenrod (1.5-3)	Small yellow flowers in late summer and early autumn; upright growing; attractive foliage	2	2	2
Solidago ulmifolia Elm-Leaved Goldenrod (2)	Interesting small yellow flowers on arching spikes in late summer and early autumn; short, upright grower; seeded itself into adjacent plot areas	2	2	2
Thalletrum dioieum Early Meadowrue (0.5-2)	Attractive foliage; low-growing; flowers inconspicu- ous and of little aesthetic value	1	1	1
Uniola latifolia Spike Grass (2-3)	Flattened oatlike seed clusters turning copper-brown in late summer; medium-green foliage; upright growth habit	2	3	2.5
Zizia aurea Golden Alexanders (2-3)	Small yellow spring flowers; yellow-green foliage	2	2	2



Flowers on swamp milkweed (Asclepias incarnata) in midsummer.



Nodding wild onion (Allium cernuum) flowered well in both sun and shade plots.

Fred Behnke Mount Prospect G.C.

How's the Weather Inside?

Every golf course superintendent has a few scars from the weather. "Remember back in '95 when . . ." "I was halfway done and we got three inches of rain in 12 hours . . ." "We lost 35 trees in that wind and had to spend a week cleaning up . . ."

No two golf courses are the same when it comes to budgets, but all golf courses spend the largest share of their dollar on labor. The best grass-grower in the business will fail if he is unable to assemble a well-trained, reliable and conscientious team.

A lot of time is spent planning for, and worrying about, the weather. It drives everything that goes on at a golf course. The maintenance staff is trained to react to change. All 120 daily man-hours (average) need to be unleashed in the proper direction—depending on the weather. Maintenance techniques depend on conditions in the field. Lots of mistakes can happen out there, especially in wet conditions. You rely on your staff to work safely and productively in all conditions because you can't be everywhere, and everyone knows you can't do anything about the weather.

So how's the weather inside?

Much has been made of personnel issues lately, and rightly so. No two golf courses are the same when it comes to budgets, but all golf courses spend the largest share of their dollar on labor. The best grassgrower in the business will fail if he is unable to assemble a well-trained, reliable and conscientious team. What is it that keeps you coming in every day to face the uncertainty and doubt? Well, it sure isn't the money, right? Seriously, I'm sure it is not just the money; words like challenge, sense of accomplishment, recognition and respect are what drive motivation. Is it any different for your subordinates? The answer should be no.

Is it?

Maslow's Hierarchy of Needs

Back in the 1950s, psychologists proposed a hierarchy of needs that drive human motivation. Abraham Maslow identified five human needs that impact an individual's desire to achieve.

- 1) Physical Needs—The most basic order of needs, including food, clothing, shelter and comfort.
- 2) Safety Needs—Avoidance of risk, harm and pain. Security for oneself and one's position.
- 3) Social Needs—Companionship, acceptance by others, love and affection and the feeling of group membership.
- 4) Esteem Needs—Responsibility, self-respect, recognition by others and a sense of accomplishment.
- 5) Self-Actualization Needs—The highest order of needs, including reaching your potential as an individual, independence, creativity and self-expression. (continued on page 18)

The first order of needs must be satisfied before moving up the list, each level building on the next. An individual stuck on the first level of needs is more concerned with self than the group, and rightly so for that individual is battling every day to survive. Where do the individuals that make up the team upon which your success depends reside in this hierarchy of needs?

Storm clouds on the horizon in the break room can result in problems that don't pass as quickly as a summer storm and can result in damage that can take longer than a week to clean up.

Inside Weather Warning Signs

- The nature of employee complaints and frequency increases.
- You experience a large number of policy inquiries, particularly on pay, benefits and discipline.
- Employees form in groups that do not normally associate with each other.
- You notice employees in work areas they do not normally visit.
- Conversation stops when you enter the area.
- Employees avoid you.

If the majority of your team is stuck on the first or second level of needs, you can be sure that issues like wages and benefits and working conditions will attract more attention than issues of recognition or a sense of accomplishment. The individuals affected will be more inclined to look outward for help in satisfying their needs. Cost-of-living issues are more pertinent now than in the days of a larger migrant labor market. If the wages paid for a fulltime employee are equal to or less than the definition of "working poor" (\$16,000/year or \$7.75 per hour), you will be dealing with first- and second-level motivation issues-one of the greatest challenges a manager can face.

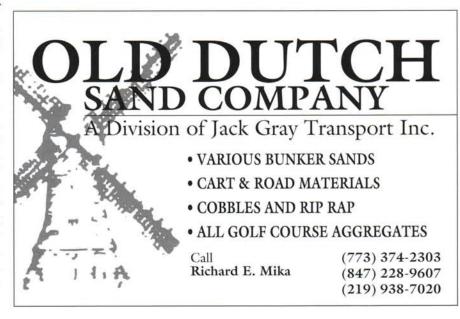
Going back to Maslow, physical and safety needs in the workplace are affected by wages and benefits, safe working conditions, work environment, labor-saving devices, job security and proper (fair) supervision. While we owe our staff every effort in securing fair wages and benefits, we are dealing with limits. These limits should be, at least, reviewed fairly and adjusted according to the market. Whether you allow the market to be the sole force in setting your limits is directly attributed to value received. The perception of fairness is best achieved by being honest and fair in assessing value and even-handed in distributing it.

"Everyone talks about the weather, but nobody does anything about it." Mark Twain

We do, however, have some influence on the "inside weather." We must deal with limits that are not totally under our control, but the proper environment necessary to allow individuals to meet their needs can be nurtured through effective leadership. The single most effective way of fostering a comfortable work environment is by practicing good communication

While we owe our staff every effort in securing fair wages and benefits, we are dealing with limits. These limits should be, at least, reviewed fairly and adjusted according to the market.

skills. Hundreds of books have been written on the subject. It's that important to success. It's even more important in establishing trust with individuals seeking to satisfy first- and second-level needs.



- 1) Take time to get to know the employees.
- Employees grow restless if long periods lapse without communication.
- 3) Ask them for their input.
- 4) Accentuate the positive.
- 5) Give meaningful praise. Be a good listener.

Do:

- When approached, avoid expectations.
- Ask questions in a low-key tone of voice.
- Restate what the person has said. This shows your interest and allows for any clarification.
- Ask for the speaker's views after he or she has recited the basic facts: "What do you think?"
- Recognize and deal with your personal feelings about the individual. Be especially attentive to people you may dislike.

Don't:

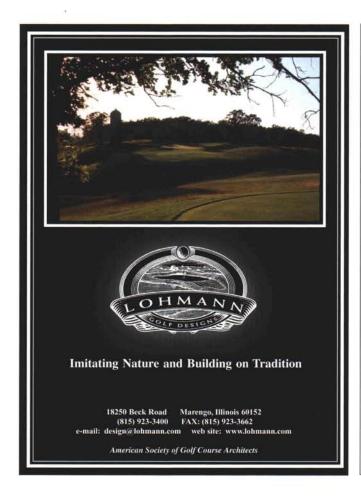
- Expect to hear the "same old thing."
- Think about your response while the other party is trying to communicate with you.
- Avoid being the "Devil's advocate." This is a challenge and often ends up confrontational.
- Don't change the subject.
- Avoid distractions; go someplace where you won't be disturbed, if possible. Distraction can be perceived as a lack of interest on your part.

By being a good listener, you reinforce the speaker's confidence in you even if ultimately you are forced to reject his concept. By reinforcing the other party's contribution to the conversation, you, in turn, will receive better cooperation from him. If you are a good listener, you increase substantially the chances that he or she will listen to

you when it is your turn to take an active role in a future conversation.

Remember that if you aren't listening, he or she will look anywhere for someone who will, and that's bad for the weather inside.



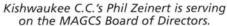




Jim McNair, CGCS Orchard Valley G.C.

Phil Zeinert, CGCS







Our host for the ITF-MAGCS spring golf day will be Phil Zeinert, CGCS, on May 7, at Kishwaukee Country Club in DeKalb, IL. No, Kishwaukee is not in Iowa; in fact, it's just two exits west of Aurora off I-88 (see directions below).

Phil is a Wisconsin native and graduate of the University of Wisconsin. During his adolescence, Phil spent his time playing baseball (pitcher) and working at a nearby golf course. Because of his 90+ MPH fastball, Phil was recruited to pitch for UW. However, he credits Dr. Wayne Kussow, professor of soil science, and Pat Norton, who at that time was superintendent at Cherokee Country Club, as the mentors who helped him decide on a career path in the golf industry.

After college, Phil served as assistant superintendent at Chero-kee C.C. before coming south to the head job at Elwood Greens Country Club (now known as the Oak Club of Genoa) in 1986. He accepted the job at Kishwaukee in 1992 and became certified in

1996. Phil claims that his biggest challenge is dealing with "tree creep" and bunker drainage on the mature layout. Currently he is awaiting approval of funds to improve bunker and low-area drainage.

Kishwaukee is celebrating its 100th anniversary this year. The original front nine was built at a different site in DeKalb in 1901 before moving to its present location in 1911. The back nine, designed by local architect Dave Gill, was added in 1968.

Phil enjoys all sorts of outdoor activities with his wife Naomi and sons Zach, 16, Justin, 13, and Jonah, 5. Camping, fishing, hunting and helping out on his father's Christmas tree farm in the fall are favorite pastimes.

Phil welcomes everyone to come out to the (far) western suburbs for an enjoyable game of golf, and remember to bring the clubs that help you hit it straight. Directions: I-88 west to Peace Road, first DeKalb exit; turn right at Peace Road and go north three miles to Barber Greene Road (stop sign) and turn left and go to Route 23 (stoplight) and turn left. The club entrance is two-thirds of a mile ahead on the right. No need to change the time on your watch, it's still in the same time zone.