

# THE SPECIES LILY

The Newsletter of the Species Lily Preservation Group  
Affiliated with The North American Lily Society



*L. grayi*

Winter 2003

## SLPG GOALS

- \* Growing as many species lilies as possible, especially those rare and in danger of extinction.
- \* Making excess species bulbs available to members.
- \* Collecting, preserving, planting, growing and distributing species seed.
- \* Collecting all possible information on each species: its habitat, distribution, cultural needs, etc.
- \* Disseminating cultural information on each species.
- \* Assembling a slide and photo record of all species lilies.
- \* Identifying areas where specific species grow and seeking protection for these areas.

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## Photographs

*L. grayi*: Ed McRae, *L. formosanum* var. *pricei*: Ed McRae,  
*L. alexandrae*: Herman Z. Wall  
Pages 4-8: Jerry Reece, Page 27: Barbara Small

## Board of Directors

Edward A. McRae (2004)  
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Ed Soboczenski (2005)  
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Robert Richards (2006)  
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Bob Jonckheere (2004)  
350 Turner Road  
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Kathryn Andersen (2005)  
7 Perth Drive  
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Woody Imberman (2006)  
520 Orchard Lane  
Winnetka, IL 60093

NALS Awards Research  
Trust Grant for Restoration of  
*L. grayi*

Spruce Bog Gray's Lily  
Restoration Project

During its annual winter meeting, the NALS board of directors awarded a \$5,000 grant to restore *Lilium grayi* habitat. The excellent grant proposal by principal investigator Jerry Reece follows.

**Project Name**

Spruce Bog Gray's Lily Restoration Project

**Project Period** [add one year to dates below]

Phase I: Pre-treatment monitoring April-August 2003

Phase II: Treatment July-November 2003

Phase III: Post-treatment monitoring September 2003-June 2004

**Funds Requested**

\$6,000-\$8,000 to partner with U.S. Fish and Wildlife Grant and Calbough Foundation Grant. Total cost of project is \$11,140.00. All funding for this project will be administered through the bog conservation initiative of the North Carolina Herpetological Society (Project Bog Turtle). No administrative costs will be deducted by Project Bog Turtle from funds designated for the Spruce Bog Gray's Lily Restoration Project.

**Principal Investigator**

Mr. Jerry Reece

**Advisors**

Ann Somers (Biologist, University of N.C. Greensboro)

Dennis Herman (Biologist, N.C. Museum of Natural Science)

Ken Bridle (Plant Physiologist, Heritage Lands Associates)



## Project Description

### Habitat

Southern Appalachian Bogs, also called Mountain Bogs, are among the most endangered natural communities found in North Carolina. Believed to have formed after the last ice age approximately 10,000 years ago, some bogs are very old while others are of recent formation. Northern vegetation was pushed into the U.S. as far south as Georgia during the Wisconsin Ice Age. As the climate later warmed vegetation migrated northward, leaving behind pockets of northern species, some of which are still with us today. Some of these relict plant populations have evolved into new species unique to the Southern Appalachians (i.e. Gray's Lily) (Figure 1).



Figure 1: *Lilium grayi*

Although Mountain Bogs have qualities similar to bogs of Canada and the northern U.S., the two should not be confused. True bogs are typically formed in a pond or shallow lake, whereas Southern Appalachian bogs are formed where a subterranean water source releases large quantities of water at one spot — usually a basin or floodplain located in a valley. Since this ground water source contains a high mineral content, our Mountain Bogs are technically classified as minerotropic fens.<sup>1</sup> This unique wetland supports a wide variety of vegetation with a dominance of grass-like plants, ferns and sphagnum moss (Figures 2a, 2b). This acid environment can also be habitat for lilies, several species of cranberry and orchid (Figures 3, 4).



Figure 2a: Sedges/Sphagnum Moss

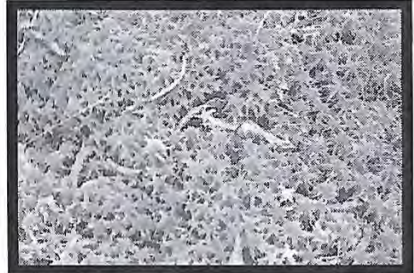


Figure 2b: Sphagnum Moss



Figure 3: Cranberry



Figure 4: Purple Fringed Orchid

### Study Site

Spruce Bog is a 10 acre wetland located in western North Carolina near the Tennessee state line. The bog has remained mostly undisturbed by the activities that have destroyed or severely altered so many of the Mountain Bogs (Figures 5, 6). State biologists consider this wetland to be of national significance due to its quality, size, species diversity, and rare species present. This wetland appears to be very old and very likely has supported bog vegetation since the last ice age (*c.* 10,000 years ago). Twelve rare plant species and two rare animal species have been documented from this habitat. Most notable is a large Gray's Lily population<sup>2</sup> (Figure 7).





Figure 5: Spruce Bog



Figure 6: Spruce Bog with opening

### Historical Status

Gray's Lily, *Lilium grayi*, was first officially collected and named by Asa Gray in 1840 during his visits to the high peaks of western North Carolina in search of *Shortia galacifolia* [Oconee Bells]. Because of its morphological similarity to *Lilium canadense*, Gray named the new lily a variety of the Canada Lily. His student, S. Watson, later recognized the new discovery as a distinct species, giving it the botanical epithet *Lilium grayi*. Even in these early years, botanists noted Gray's Lilies were rare and restricted to high elevation meadows and boggy wetlands.<sup>3</sup>

### Current Status

At the present time, all known Gray's Lily populations are found in northwestern North Carolina with the exception of one locality in northeastern Tennessee. Historically, 30 populations have been documented, but only a fraction of these remain viable due to the loss of habitat, disease, deer herbivory and illegal collection. Loss of habitat includes the draining of wetlands and the over-growth of habitat by shrubs and trees. In recent years, an increase in disease occurrence has been noted, including a combi-

nation of highly virulent strains of *Botrytis* and *Rhizoctonia*, a soil microbe.<sup>4</sup> Most plants with this infection suffer total die-back by early July as the plants approach flowering (Figure 8). Herbivory by deer has also become a serious problem as their population numbers continue to increase. Even with some state and federal protection, illegal collection of Gray's Lily bulbs continues. Evi-



Figure 7: Gray's Lily



Figure 8: Gray's lily with disease and dieback

dence of such activity was noted this spring in one of our local wetlands. Many lily plants once found near hiking trails have likewise vanished.

Even with the current threats to Gray's Lily populations, this species has not been placed on the federally endangered or threatened list. It is, however, awaiting listing at the federal level (Federal Species of Concern) and an on-going assessment will aid in a more appropriate designation. At the state level, Gray's Lily is listed as endangered in Tennessee and threatened in North Carolina. The North Carolina Natural Heritage Program ranks



this species G2G3, meaning it is very rare globally with other factors making it vulnerable to extinction throughout its range.

With the remaining lily populations, most are located in various wetlands (seeps, bogs, wet meadows) that are overgrown with shrubs and trees. The majority of these plants remain in the vegetative stage with only a few flowers produced annually. In most cases, the plants wither from early die-back before seed pods mature. Populations growing in high elevation meadows have the benefit of a more open habitat but are suffering from extensive deer herbivory. Throughout its range, Gray's Lily appears to be concentrated in three population centers. One of these is found at the Spruce Bog site with several hundred individual plants.

As with other populations, the Spruce Bog site is overgrown with shrubs and trees and is in immediate need of management to increase the light level and air circulation around the lily plants. The objectives of this project will increase the overall quality of the habitat for Gray's Lily with expected benefits for the remainder of the bog community.

## **Methods**

The purpose of this proposed project is to develop effective methods to manage woody vegetation in a bog habitat with a rare Gray's Lily population. These data can be used to restore Gray's Lily habitat at this study site and serve as a guideline for bog restoration at other locations. Great care will be taken during the project not to damage any of the rare species. Experimental treatments will be conducted by qualified personnel. Field methods, summarizing the project phases, are listed below.

1. Pre-treatment: The more open areas of the study site will be located by using infrared aerial photographs. A ground search will be used to confirm that these areas have large numbers of Gray's lily. Individual plants will be marked, measured and checked for disease.

2. Treatment 1: Plots will be marked off in 10x10 foot squares. Shrubs will be cut at near ground level and the cut surface treated with the wetland herbicide Rodeo.<sup>5</sup> Two treatment periods will be used: summer and fall. The number and size of shrub species treated will be recorded for evaluation and monitored for re-sprouting. Appropriate control plots will be included.
3. Treatment 2: Plots will be marked off in 10x10 foot squares. Shrubs, again, will be cut at near ground level and in this treatment will be burned for a short period using a portable gas torch. The number and size of shrub species treated will be recorded. Shrub stumps will be evaluated for decay and any re-sprouting. Controls will be included.
4. Post-treatment: All shrub stumps will be evaluated for death, decay or re-sprouting. Damage to surrounding vegetation will be noted. The condition of Gray's Lily plants will be monitored throughout the project.

### **Budget**

1 chainsaw	\$400.00
2 large pruning shears	60.00
2 small pruning shears	30.00
2 units of herbicide (Rodeo)	170.00
1 portable gas torch	70.00
Chainsaw fuel and supplies	50.00
Boots, gloves, storage bag	80.00
Flagging tape, nylon rope, stakes, brushes, markers, etc.	40.00

Field work hours (2-3 people) @\$40.00/hour for 6 weeks (40 hours/week)	\$9,600.00
Computer work 20 hours at \$20.00/hour	400.00
Infrared aerial photographs	200.00
Photography	40.00
<b>Total</b>	<u>\$11,140.00</u>

## Literature References

- 1 McQueen, C.B. 1990. *Boreal Peat Mosses of North America*. University Press of New England. Hanover, NH.
- 2 Mansberg, Laura. 1987. Site Summary Report. North Carolina Natural Heritage Program. Division of Parks and Recreation. Department of Environmental and Natural Resources. Raleigh, NC.
- 3 Sargent, C.S. *Scientific Papers of Asa Gray: Notes of a botanical excursion to the mountains of North Carolina*. Vol. II. Houghton, Mifflin and Company. New York.
- 4 Moni Bates, personal communication. North Carolina Plant Conservation Program.
- 5 Somers, A.B., K.A. Bridle, D.W. Herman and A.B. Nelson. 2000. *The Restoration and Management of Small Wetlands of the Mountains and Piedmont in the Southeast*. Watershed Science and Wetland Science Institutes of the Natural Resources Conservation Service. The University of North Carolina at Greensboro, and Pilot View Resource Conservation and Development, Inc.

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Species Group General Meeting  
St. Louis Airport Hilton  
Friday, June 25, 2004, 2:30-3:30 p.m.

Hope to see you all there!

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### Please Help!

The NALS Research Trust has graciously allowed the Species Group to offer two items at the NALS auction for our benefit. If you wish to donate an item, please contact Barbara Small.

Are species lily habitats disappearing in your neighborhood? Are any of your area groups attempting to preserve lily habitat? Please write an article for us!



Minutes of the Species Lily Preservation Group Board Meeting  
Ramada Inn Thunderbird Hotel  
Bloomington, Minnesota, Wednesday, July 2, 2003

**Present:** Bruce Richardson, president pro-tem; Ted Sobkowich, treasurer; June Taylor, secretary pro-tem; Richard Kammer, Woody Imberman, Ed Soboczenski, Barbara Small, Warren Summers, Art Evans and Ed McRae.

Bruce Richardson called the meeting to order at 5:10 p.m. He thanked everyone for the feedback and possibilities for changing the relationship with NALS. He realized that without a computer at home there was difficulty in communicating with other board members. He personally felt both groups would be better off together and had discussions with the NALS Board regarding feelings on separation. He questioned why there are two groups having the same goals and feels both groups as one could be more effective.

Not everyone understood what happened to plans at last summer's meeting. Some time was spent reviewing, summarizing and discussing what being separated would mean when all the same people are involved in both NALS and the Species Group. It was pointed out that 61 Species members are not NALS members and the bookkeeping with membership records would be too time consuming. If the Group remains independent, it can continue to make independent decisions.

After much discussion, the consensus of the group was that

1. It is imperative to have financial reports, especially to attain a non-profit status and conform to IRS regulations.
2. The non-profit status should be resolved as soon as possible.
3. A financial report should be published in the species newsletter annually.
4. Although NALS has excused the Species Group from dues, SLPS should pay affiliate dues of \$50 to NALS each year.
5. We should facilitate previous goals of Incorporation and Bylaws changes.
6. We should clarify Ed McRae's status with the Species Group.
7. While we provide bulbs for members to enjoy, we should also endeavor to get more data about results of the plantings.
8. We should work together with NALS for the benefit of both

groups.

**Nominating Committee Report:** Richard Kammer reported the following persons have been nominated to serve as officers for the coming year:

President	Warren Summers
Vice President	Kristin Swoszowski-Tran
Secretary	June Taylor
Treasurer	Ted Sobkowich

**Directors:**

Robert Jonckheere was nominated to complete the term of David Sims which will expire in 2004. Kathryn Anderson was nominated to complete the term of Ed Soboczenski which will expire in 2005. Robert Richards and Woody Imberman were nominated to terms which will expire in 2006.

In closing President Pro-tem Bruce Richardson encouraged Warren Summers to have a closer connection with his committees and to communicate more so all may work together better. The meeting was adjourned at 6:45 p.m.

**Minutes of the Species Lily Preservation Group General Meeting  
Ramada Inn Thunderbird Hotel  
Bloomington, Minnesota, July 3, 2003**

The Annual General meeting was opened at 3:35 p.m. by Bruce Richardson, president pro-tem. During his President's Message he noted the membership status of the Species Group. Currently there are 243 members; 182 of them are also NALS members; 31 are overseas members and approximately 30 are North Americans who are not NALS members. Current USA membership dues are \$12 a year, January through December.

He announced that after much discussion the connection with NALS has been tabled. The Species Group will continue with the same affiliation as a regional, and pay \$50 association dues to NALS. He further noted that the Species Group should plan to have its meetings at the same time as NALS meetings.

There was extensive talk about becoming a corporation and changes that need to be made to the Constitution. Barbara Small will work on the Constitution changes. Warren Summers remarked that the Species Group is really not a business and rather than using the word corporation, the word should be organization.

Some changes need to be made regarding Section III (Conservationist). The wording should be changed to say *bulb suppliers* to include more than one. Ed McRae's status should be clarified as an independent bulb supplier and payment for bulbs should be made directly to Ed.

Have goals been met?

1. The President felt the Group has done well with growing and protecting the species lilies and making them available to members. He congratulated Ed Mc Rae for his work. He mentioned that Ed is growing lilies on  $\frac{1}{4}$  to  $\frac{1}{2}$  an acre of land. He dug and shipped 15,000 bulbs last year. Half go to SLPG and lily societies. 109 SLPG members ordered bulbs last year.
2. Seed acquisition and distribution needs to have a better network to get to collectors and growers.
3. There is a need to get input from people who order the seeds and bulbs to learn the results in different parts of the country. Tim Whiteley from the UK volunteered that he flowers 40 lily species in his garden. He gets his species from the Lily Group of RHS, which has its own funds and some independence, but remains connected to RHS. Is there some way we can work together?
4. We should produce a slide collection of species lilies. He urged members to use the collection available from Janet Vinyard. Ed McRae has organized the collection.
5. Preservation & Conservation will evolve in the future. It needs people with enthusiasm and time, spreading information and lobbying .

Bruce Richardson suggested that we should

1. Form a subcommittee to pursue conservation goals.
2. Find a coordinator to work between the Species Group and NALS.



3. Publish a handbook for species to be used in conjunction with *Let's Grow Lilies*
4. Increase species representation at the summer NALS show to encourage public awareness
5. Work on a way to help people find more information about lilies, expand ways to make available lily sources and increase links to NALS.

The President asked for any further comments. Barbara Small spoke about the term *re-associating with NALS*. She stated, "When Bruce talks about re-associating with NALS, I would like to stress, we have always been associated with NALS. We are affiliated with NALS. They have been wonderful to us. We have no desire to grow away from NALS. We think NALS is wonderful. So it's not that we need to re-associate with NALS. We already are associated with NALS."

Barry Strohman added that when the Species Group was formed, it was formed with the idea that it would be like a regional society and work under the auspices of NALS, and we have been basically doing that, except now we are also publishing a newsletter and that costs a little more money making it necessary for the species group to look at the financing. It was always set up to be acting as a regional and supporting NALS as a regional group.

The meeting was adjourned at 4:35 p.m.

**Minutes of the Species Lily Preservation Group General Meeting  
Ramada Inn Thunderbird Hotel  
Bloomington, Minnesota, July 4, 2003  
[Abridged by the editor]**

The meeting was called to order by Bruce Richardson, president pro-tem, at 3:35 p.m. He briefly reviewed his President's message and membership statistics which he had given at the meeting yesterday for those who were unable to attend that meeting. He noted that current Species Group membership is \$12 per year in the USA.

Due to time constraints for this meeting, the president asked for a motion to dispense with reading the minutes of last year's General Meeting. Warren Summers moved that the minutes not be read at this time.

Seconded by Darrel Roeder. Motion carried.

Ted Sobkowich gave the treasurer's report for the year, listing \$3,118 income for the year, \$2,612 expenses, \$506 net income and \$3,093 in assets at the end of the year. President Richardson pronounced the Species Group solvent and added that two newsletters are being produced each year.

Ed McRae gave a brief report about Lava Nursery and noted that the growing situation there is in good shape. He offered printed copies of his report for those who wished more details.

Dick Kammer, Chairman of the nominating committee, reported the following persons have been nominated to serve as officers and directors: President: Warren Summers, Vice President: Kristin Swoszowski-Tran, Treasurer: Ted Sobkowich, Secretary: June Taylor. Directors for terms expiring in 2006: Robert Richards and Woody Imberman. For a two-year term expiring in 2005: Kathryn Anderson completing the term of Ed Soboczenski. For a one-year term expiring in 2004: Robert Jonckheere completing the term of David Sims.

Newly elected president Warren Summers stated he has plans to get started immediately working on goals via the internet and would ask NALS to assign a time for the species meeting next year. He asked for nominations from the floor for nominating committee members for next year. Ed Soboczenski was nominated by Richard Kammer. Art Evans was nominated by Barbara Small. Charlie Kroell was nominated by Ed McRae. A chairman will be appointed in the near future.

There being no further business, President Summers declared the meeting closed at 4:05 p.m.

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**Open Letter to the Species Group**

I'm writing this to give you an update on the status of the group and to ask for your assistance on prioritizing the goals and directions of the group. Our group is loosely organized with membership spread all across North America and overseas. This makes it very difficult to get together for board and membership meetings to effectively get things done. Tasks, which require board or membership approval, become

very difficult to accomplish and tend to be squeezed into a few hours at the annual NALS summer meeting. If an issue on the table is unresolved, it tends to get tabled until the next meeting the following year.

The “glue” which is holding our group together are the species newsletters and the growing and sales of species bulbs. Barbara Small and Ed McRae are primarily responsible for these efforts. They have prevailed despite situations that have come up which they have had to handle with little outside support.

After our Species Group meeting on July 4, 2003 in Bloomington, MN, I believe we are left with two immediate goals: 1) reviewing and revising the species group bylaws as necessary to clear the way for our registration as a nonprofit organization and 2) registering and obtaining nonprofit incorporation status with the federal government. The Board must convene to approve the recommended bylaw changes before the annual membership meeting. I believe we can do this via a conference call of the board members this spring after we have first discussed this on-line with a series of e-mails among those board members with access to e-mail. Following our conference call, the changes need to be presented for approval at the membership meeting.

This winter we need to clarify our goals and directions for our group. Some of these goals might be to encourage the preservation of the species, promote interest in species lilies, develop or support projects to increase public awareness of species and disseminate information and sources of species so members can enjoy and grow them in their gardens.

What do you think? Please contact me with your thoughts on this. Are there any specific projects that the group should be involved with? What should be the short- and long-term objective of our group? I can be contacted by e-mail at [sumolily@juno.com](mailto:sumolily@juno.com).

Sincerely,

Warren Summers, President, Species Lily Preservation Group

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**Thank You!**

Thank you, Sacramento Sierra Lily Society, for the \$200 donation and for joining the group. Other contributions would be welcomed!



# A Review of Species Grown at Lava Nursery in the Past Seven Years

Ed McRae

## Species and their Varieties Involved in the Asiatic Hybrids -- Division 1

All species involved in Division 1 hybrids are native of Asia with one exception, *L. bulbiferum*, which is a native of Europe. They all have epigeal (immediate) germination with two exceptions: *L. bulbiferum* has delayed hypogeal germination while *L. dauricum* has immediate hypogeal germination, the seed producing bulblets which are immediately followed by true leaves. Seed of *L. dauricum* can therefore be sown in spring with the other Asiatic species. All are hardy and easy to grow, preferring a sunny location with excellent drainage. All detest excessive amounts of water following flowering. Varieties of species will all breed true if isolated from the type. Asiatic species are very easy to grow with seed being sown in early spring either in a cool greenhouse or outdoor beds. One year in the beds is followed by one or two years in rows in the field.

The species at Lava Nursery were planted with a traditional Dutch planter where depth of planting is critical, being continually adjusted to the size of bulbs planted. The bulbs must be at a minimum of three to four inches deep, thus protecting them from the harsh surface soil temperatures experienced during the summer months.

The early flowering Asiatic species resent excessive moisture following flowering, preferring relatively dry conditions until the end of the season. We are fortunate that Lava Nursery has deep fertile soils with excellent drainage; heavier soils with poor drainage must be avoided if such species are to flourish.

*L. amabile* and *L. amabile* var. *luteum*, like all Asiatic species, are perfectly hardy, easy to grow and will survive in most zones.

The *L. amabile* fragrance is quite strong and not attractive to some tastes!

*L. bukozanense* has been easy to grow and has variant orange-red flowers. This species hangs down the side of cliffs in its native habitat and frequently shows a floppy habit under cultivation.

*L. callosum* and its variety *flaviflorum* have proved easy except where bulb quantities are concerned. The tiny flowers are especially charming with plants reaching five feet in height. Its late flowering habit has made it difficult to produce seeds outdoors — thus the problem.

*L. cernuum* is truly a favourite in Asiatic species. The nodding lilac-pink flowers exude an attractive spicy fragrance, and the color variation within a population is considerable. A recent strain from Marina Baranova came from seed collected near Vladivostok. The strain is especially attractive, the colors being more intense and the plants showing a much shorter habit.

*L. concolor* is a dependable species with delightful tiny upright flowers. The majority of forms are early flowering with the color varying from bright orange-red to softer oranges; the bud count is very high. The yellow form (var. *coridion*) is especially appealing. A late form, which flowers at least a month later, is very strong with plants reaching five feet in height and carrying hosts of flowers.

*L. dauricum* is the earliest of all the species grown at Lava Nursery. Germination is immediate hypogeal, thus seeds can be sown in spring with other Asiatic species. The color variation is enormous and varies from soft golden-yellow to bright orange-red bicolors.

*L. davidii* is the prince of Asiatic species as far as vigor and poise are concerned. Four plantings at Lava Nursery in 2003 produced perfect stems carrying up to forty flowers per stem — the perfect

inflorescence! A yellow form was selected in 2003 and will be studied carefully.

*L. lancifolium* (synonym *L. tigrinum*) was grown from seed received from Arakawa in Japan. The seed of this diploid form produced stems of six and seven feet in their third year. Copious bulbils were also produced. *L. lancifolium* var. *flavum* was also received and has produced an equally vigorous population; we were surprised to find several plants that were pollen free!

*L. lankongense* is a true success at Lava Nursery with huge plantings of this beautiful species being established. The plantings produce five- to six-foot stems carrying delicate rose-pink flowers which exude a most pleasing spicy fragrance. The stoloniferous habit enables the species to cover a considerable area in a relatively short time.

Seeds of *L. leichtlinii* and its variety *maximowiczii* were also received from Arakawa in Japan. Despite the relatively small quantity of seed, well over fifty strong plants were produced. Excellent reports regarding performance have been received from members of the Species Group.

*L. pumilum* and its varieties Golden Gleam and Yellow Bunting are truly heralds of spring and grow profusely at Lava Nursery. In the garden they should always be planted in a sunny location with soil of excellent drainage. Copious seed is always produced which can be scattered around the existing plantings; the seed will produce younger plants which will flower in their second season. An especially attractive form of *L. pumilum* was received from Chen-Yi in China; flowers are much larger and intensely colored with stems of shorter habit.

*L. wilsonii* and *L. wilsonii* var. *flavum*, the latest flowering of the Asiatic species, have always grown strongly at Lava Nursery. The broad-leaved foliage is especially attractive. Recent seed sent from Japan is under study including forms under the name of



*L. maculatum*.

### **Species and their Varieties Involved in Martagon Hybrids – Division 2**

All species in this group have hypogeal (delayed) germination and are native to Europe and Asia. All are hardy, early-flowering and easy to grow in most northern climates. They also prefer some protection from the warm summer sun. They will flower for many years in the garden once established.

*L. martagon*, *L. martagon* var. *album* and *L. martagon* var. *dalmaticum* were offered in the earlier years. The best results came from hand planting one-year seedlings in specially prepared raised beds in mid-June. These were allowed to remain down for two growing seasons and smaller flowering-sized bulbs were produced. Large quantities of seed is available and we plan a new program locally. *L. martagon* forms require skill and patience on the part of the grower as well as highly fertile soils with adequate humus.

*L. tsingtauense* has produced excellent plantings at lava Nursery, having been established since the beginning of our program.

### **Species and their Varieties Listed under the *Candidum* Hybrids – Division 3**

Most species within this group have hypogeal (delayed) germination. They are native to Europe and Western Asia. Few hybrids are available at this time. Work by Dr. North in Scotland demonstrated that many species within the group could be crossed. All species within this group are hardy and perhaps more suited to northern gardens. Many can be spectacular once established. The "Madonna Lily," *L. candidum*, is most widely grown and prefers a sunny location with excellent drainage.

*L. candidum* seed was sown thinly as early as possible in spring, either in beds in the shade house or beds outdoors which had been fumigated to control weeds and disease. The seedlings remain

green over winter with the majority producing flowering stems the following year. Bulbs are lifted in mid-August of their third year and shipped early in September. They must be planted as early as possible, allowing the over-wintering rosette to form. The control of *botrytis* blight is essential when growing this species.

### **Species and their Varieties Involved in the American Hybrids – Division 4**

All these species have hypogeal germination and too little is known regarding their adaptability to different climates and soil conditions. They have adapted well in the gardens of the British Isles and also to the warmer climates found in New Zealand. They seem quite inter-fertile and many beautiful hybrids have been produced. They are divided into dry land and wet land bulbs.

*L. pardalinum* has proved to be the most reliable of the Western American species. Sown in beds in the shade house in August, the hypogeal germinating seeds emerge the following spring. Our best plantings produced strong stems and large bulbs in their third year.

*L. parvum* and its variety *hallidayi* performed quite well under identical conditions. It has been difficult, however, to produce bulbs of flowering size.

The best crop of *L. parryi* was produced at Cebeco Lilies in 1998 and 1999 when a magnificent stand flowered under protection. The plants were from three to six feet tall and color varied from golden yellow to lemon yellow. The spotting patterns were fascinating and varied from spotless to streaking in many flowers. The fragrance was almost overpowering and delightful. Many bulbs were shipped to members, but despite requests for information about their performance, few reports were received.

*L. canadense* var. *coccineum* was also grown at Cebeco Lilies

with over fifty trays of seedlings being turned over to the Species Group in the fall of 2000. Following storage over winter, the tiny seedlings were planted in rows at Lava Nursery in late April 2001. The following year (2002) the huge planting was nothing short of spectacular, producing stems up to six feet in height – truly a feast for the eye. The entire planting was dug by hand to avoid mechanical damage to the tender bulbs. The bulb quality and size were excellent. All members who ordered bulbs in the fall of 2002 received a gift of three bulbs of *L. canadense* var. *coccineum*. Later reports from members in England were especially encouraging.

A new plan is to grow more North American species locally [around Sandy, Oregon]. We feel the richer soils and longer growing season may be an advantage.

### **Species and their Varieties Involved from *L. longiflorum* – Division 5**

Most hybrids in the trade originated from crosses between *L. longiflorum* and Asiatic hybrids. The trumpet species are mostly from warmer regions and will do well in southern climates. All have epigeal germination and are not to be confused with the Chinese trumpet lilies of Division 6, all of which have purple bulbs.

*L. formosanum* seed sown in early May at Fairdale Nursery greenhouse would always flower late the same year, definitely a problem if you want to produce commercial bulbs! The lower elevation variety *pricei* behaved differently producing bulbs of good quality to plant in rows the following spring.

### **Species from China Involved in the Chinese Trumpet and Aurelian Hybrids – Division 6**

All these species have purple or near purple bulbs. All have epigeal germination. Their hardiness in many northern climates is questioned. They are truly sun lovers and must be planted in a sunny location. They are perfect for southern climates.

*L. leucanthum* var. *centifolium* is truly a winner following the standard pattern: one year in the cool greenhouse followed by two years in rows at Lava Nursery. Huge, quality bulbs are produced in the second year.

It would be hard to fail with the reliable species *L. regale*, and quality bulbs from seed have always been available. The recently introduced form from Chen-Yi in China is especially strong and attractive.

The recently introduced form of *L. sargentiae* from Chen-Yi should interest all who enjoy trumpet lilies. Seed was produced from the bulbs originally received with the seedling population flowering in their second year at Lava Nursery in 2003. They flowered at least two weeks later than other trumpets and were quite short in stature (three feet). The plants bore copious bulbils. They are very attractive and resemble *L. brownii*, the flowers being cream to white with a dark reverse. The fragrance seemed especially distinct and less powerful than that of traditional trumpets. Bulbs will be taken to the greenhouse for seed production in 2004.

*L. sulphureum* is a truly fascinating species, and seed was again produced from the bulbs received from Chen-Yi. The seedling growth was quite amazing and equaled or surpassed that of trumpet hybrids in the same greenhouse. The seedlings were planted in rows the following spring with the very late emergence really surprising us. I feel that *L. sulphureum* does not respond to high temperatures as other trumpets do; bulbs must be planted much deeper to avoid the high temperatures of summer. *L. sulphureum* flowered very late with a very low bud count, the plants producing two or three buds in their second year in rows. All plants were copiously covered with bulbils. A number of larger bulbs were potted and flowered in the shade house at Lava Nursery in 2003. I was awed by the sheer beauty of the flowers which were identical to the illustration on the cover of the RHS publication "Lilies and Related Plants 2001-2002." The color is actually



cream gold with pink reverse and margins.

*L. rosthornii* is by far the strongest and most reliable of all the species received from Chen-Yi. The flowers resemble those of *L. henryi*, but that is the only similar characteristic. Plant habit, height, foliage, bulbs and seed are all totally different. The species is very late flowering growing under field conditions. The flowers vary in color intensity. Many of the nectary furrows in *L. rosthornii* are very dark, and plants were selected for this special feature.

### **Species and their Varieties (Mostly from Japan) Involved in the Oriental Hybrid Group – Division 7**

Certain forms of *L. speciosum* are from China. All have hypogeal germination and most grow very successfully in cooler climates. The majority flower in late summer and appreciate protection from late afternoon sun. A mulch or ground cover to keep the ground cool is also excellent.

The Oriental species *L. alexandrae*, *L. auratum* var. *platyphyllum*, *L. rubellum* and *L. speciosum* var. *rubrum* have all grown well at Lava Nursery. The hypogeal germinating seed is sown in August, being placed in plastic sacks containing equal quantities of moist sphagnum peat and vermiculite; incubated at 70° F., the germination is followed by a twelve week cold period (34°) before sowing in the greenhouse the following spring.

*L. alexandrae* is a rather tender species although some reports have indicated its survival over winter at very low temperatures. Seeds sown in 1998 did not produce bulblets until the following spring; these sprouted with no cold period and were planted immediately. The seedlings were planted in rows the following spring and I was delighted with their growth, all being twelve to fifteen inches tall and carrying an average of two buds after their first year in rows. A very bad frost was experienced in mid-December of that year, resulting in almost total kill of the whole planting. The bulbs were simply not conditioned for such an

early freeze.

*L. auratum* var. *platyphyllum* has been a perennial favorite at Lava Nursery. A huge planting flowered in 2003 and was greatly admired. Parent plants had been selected for sturdy habit, large out-facing flowers with rich gold bands and without spots. Well over 80% of the plants showed these characteristics and bulbs of exceptional quality and size were harvested.

*L. rubellum* was grown from seed that had been stored in the freezer for over 40 years, yet germination was excellent. The plants, carrying two to four blooms per stem, flowered very early in their second year in rows. The one problem with this species was reducing moisture following flowering; this is difficult to do when late blooming species are growing nearby. The plants nevertheless produced fine bulbs with strong basal root systems.

*L. speciosum* var. *rubrum* was grown from seed using select clones as parents. Despite the late flowering habit of this species, the bulbs were well sized when harvested and stored very well.

One of the feasts to the eye over the years has been the flowering of *L. speciosum* var. *gloriosoides* from Chen-Yi . Flowered in two large containers at Fairdale Greenhouse, such beauty is hard to surpass. This unique and beautiful form is so late flowering that it is hard to imagine anyone being able to grow it successfully outdoors. [Editor's note: it grows outside in zone 9 very well.]

Plantings of the beautiful species *L. taliense* var. *kaichen* have varied from highly successful to poor at best, depending perhaps on which part of the field is selected! I believe that depth of planting is especially critical with this species, cooler summer providing the best results.

*L. wardii* is one of my favourite species and grows superbly at Lava Nursery. Flowers are lilac-rose with attractive markings

and unique fragrance. The firm bulbs are especially desirable.

### Division 8

This group is comprised of species from Asia that are not involved in any group of hybrids to a high degree. The majority show no record of being involved. All have epigeal germination.

*L. primulinum* has not been the most successful species with only one reasonable crop being produced. It seems similar to *L. nepalense* in its requirements, and another location may be the answer.

It has been a delight growing *Lilium* species over the past few years, and I feel a deep sense of gratitude to all who have been involved. Flowering such species as *l. amoenum*, *L. bakerianum* (three clones), *L. duchartrei*, *L. kelleyanum*, *L. nanum* and *L. sempervivoideum* has been especially thrilling.

I urge members to give a brief report on the performance of species in their area, especially mentioning soils and location as well as zones.

Our Conservationist Ed McRae at Lava Nursery with *L. leucanthum* var. *centifolium* and Mt. Hood in the background







*Lilium formosanum* var. *pricei* (above) and *L. alexandrae* (below)

