THE KUDZU COALITION

• Four years old
• No paid employees
• No grants
• Over 140 participating groups
• Mission is more than just “control”
OVER 65 SITES – ALL SUCCESSFUL
ALONG RAILROAD BANKS ...
During 2005 & 2006:
- Tools
- Methods for individual plant kills
STUDENTS OUTDOORS
RECENT FOCUS

- Larger and larger sites
- But .... removing the bio-mass is a huge task
  - 30 to 40 % of volunteer time
CHALLENGE # 1

- **Bio-mass**
  - Overwhelming
  - Typically waist high or higher
  - Prevents access to the ground
  - Hides what is under there
POSSIBLE SOLUTION

• “Maybe my skid-steer loader could speed the clearing of the kudzu mass.”

Volunteer Paul Blakeley
August 2006
SOLUTION # 1: SKID-STEER ON A ROLL (Some soil disturbance)
WHOLESALE BIO-MASS REMOVAL
“Weapon of Mass Destruction”
15 university and state websites
None mention use of skid-steers
One mentions use of disking prior to herbicides
One mentions use of brush hog prior to herbicides
CHALLENGE # 2

- Many, many crowns
- Huge number in every patch
- Needed a way to measure effectiveness of removal methods
NODES CAN ROOT EVERY FOOT OR SO
CROWN DENSITY: VISUALLY
(Each flag marks a kill)
SOLUTION # 2: DR. MILLER’S IDEA
(¼ milli-acre sampling research tool)
FINDINGS

.... In mature, open patches:

Typically  150,000 crowns per acre

From:   40,000 crowns per acre
To:     365,000 crowns per acre
CHALLENGE # 3

Mechanism for wholesale crown and rooted node removal
UNEXPECTED BENEFIT:
CROWNS IN SKID-STEER PILES!
LIFTING PULLS UP ABOUT 2/3 OF CROWNS
(Varies with moisture in soil, etc.)
CHALLENGE # 4

- Kudzu vines wrapped around the skid-steer’s wheels and axles
STOPPED TO CLEAR VINES
SOLUTION # 4: DOUBLED THE WIDTH UNEXPECTED BENEFIT: DOUBLED SWATH
CHALLENGE # 5

- Uneven terrain
  - Skid-steer was mostly limited to level ground
SOLUTION # 5: METAL TRACKS
(Second hand at dealer’s cost: $1,000)
TYPICAL KUDZU SITE - BEFORE
(Daunting task for volunteers)
AFTER SKID-STEER LOADER TREATMENT
(Now workable by volunteers)
CHALLENGE # 6

- Need expanded reach
  - across creek
  - up into trees
  - down into creek bed or ravine
SOLUTION # 6: LONG BOOM WITH NOSE FOR INSERTING GRAPPLE HOOK
HIGH ACROSS CREEK
INTRODUCING .... “KUDZILLA”
CHALLENGE # 7

- Need to “rake” kudzu from flat surfaces:
  - Uphill banks
  - Creek beds
SOLUTION # 7: THE KUDZILLA “KLAW”
(Some ground disturbance)
BOOM & TEETH:
CAN BE MOVED LIKE A RAKE
YELLOW FOR BETTER VISIBILITY
CHALLENGE # 8:
FIND EFFECTIVE TRACTOR METHODS
BRUSH HOGS REMOVE BIO-MASS
STRING TRIMMER
WEEKLY TREATMENT WORKS
SEASONAL PRODUCTION OF KUDZU FOR LIVESTOCK FORAGE

Data is from SEASONAL PRODUCTION OF FORAGE*, NC State College, MRS-266, 1934.?
REPEATED BRUSH HOGGING

• First treatment removes existing bio-mass
• Follow-up:
  • Removes new vines
  • Interrupts first rooting of new growth (late July)
• Late season:
  • Removes & disturbs some crowns & hair roots

• Literature & Edwards confirm “Three times hurts”
APRIL RESULTS – EARLY BUT PROMISING
OFFSET FLAIL MOWER
(Some soil disturbance)
MOWING PERSISTENTLY CONTROLS IT
CHALLENGE # 9

(Area of embarrassment)
AFTER SKID-STEER: CULTIVATOR WITH 12” SWEEPS
LIMITED TO LEVEL, OPEN TERRAIN
(Significant soil disturbance)
AFTER SWEEPS ...

EXPOSED CROWNS & ROOTS
Dr. Gill Newberry suggested:
  - Winter kill might occur on exposed roots & crowns
Study by Dr. Sage at University of Toronto:
  - Roots are more susceptible to cold than crowns or vines
  - Killed when tissue reaches 23 F

If the cold doesn’t kill them, brush hogging again will
ROTO-TILLER ALSO EFFECTIVE
(Significant soil disturbance)
SKID-STEER, THEN SWEEPS OR ROTO-TILLER KILLS OVER 90% OF CROWNS
READY FOR VOLUNTEER MOP-UP

- But this is another story for another time.
FROM KUDZU TO COMMUNITY GARDENS IN NINE MONTHS
INVASIVES JUNGLE: PRIVET, ROSE, IVY, WISTERIA, HONEYSUCKLE, & KUDZU
PRICE OF ATTACHMENTS

- Rebuild forks (widening) $ 700
- Booms: Two 4’, one 8’, and one 16’ 2,000
- Nose and drilled holes 250
- Rakes (Klaws) 4’ and 8’ 550
- Sub-total Machine Shop $3,500
- Used forks & carriage 400
- Second hand metal tracks 1,500
- Field cultivator with bolted sweeps 550

Grand total $5,950
VALUE OF VOLUNTEERS

PRICELESS
OVERALL COST

- With volunteers: Not zero
- Without volunteers:
  - Herbicide methods: Less

The difference is narrowing
OPERATIONAL ALTERNATIVES

• **First** treatment methods:
  - Skid-steer loader (Kudzilla)
  - Brush hog
  - Herbicides applied by certified professional

• **Second** treatment methods:
  - Skid-steer with sweeps
  - Tractor with sweeps or roto-tiller
  - Misc: Fence, sheeting, mowing, weed eater, etc.
  - Herbicides

• **Third** treatment methods:
  - Mop up (surgical)
  - Brush hog, mowing, weed eater
1. Each site is different.
2. No single method is best for all sites.
3. A combination of methods (integration) can be more effective than using a single method multiple times.
More details on website
www.kokudzu.com

QUESTIONS?