Preventing the spread of invasive plants spread through contaminated aggregate

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Invasive plants spread through contaminated material
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Inspect quarries to prevent this
Plants distribute along a bell curve.
Wind increases dispersal distance
Gravity and water increase dispersal distance
Animals increase dispersal distance
Factors combine to increase dispersal distance

Wind → Gravity → Animals → Humans → Increase dispersal distance
Disturbance creates habitat for plants
Adapted from Klinger and Brooks 2009
Plant resource availability

Plant propagule pressure
Contaminated aggregate transports invasive plants from one disturbed area to the next.
How is aggregate mined?

Active pit

Sent to the markets

Crushed and sorted

Sits in stockpiles

Taken along internal access roads
Some materials are weedier than others

Weediness increases

- Asphalt
- Concrete
- Crushed bedrock
- Crushed river rock
- Uncrushed material
- Soil
Passing
Probability of contamination is extremely low
Conditional Probability of contamination is possible, but unlikely
Failing
Probability of contamination is likely
Difficulties in inspections

- Seed bank
- Wind
- Pits are big, dangerous
- Snap-shot in time
- Compliance
- Pressure to pass
Difficulties in inspections
All groups in an organization need to participate

- Biologists
- Planners
- Engineers

Contract language
Steps to purchasing weed-free aggregate

1. Contract language
2. Contact quarries
3. Inspect quarries
4. Create a IWMP
5. Purchase aggregate
6. Distribute certificate
7. Re-inspect
Create a buying consortium

- State agencies
- Private companies
- Federal agencies
- Private landowners

Buying consortium
The costs are low

Land managers
- Inspectors
- Potential increase in price

Quarry managers
- Invasive plant management plan

Especially when compared to the cost of large-scale treatments
Quarries have good reasons to provide weed-free aggregate

- Increased marketability
- Quality product
- Reclamation
- Stewardship
BMP’s for quarry managers

- Keep piles active
- Stage material away from invasive plants
Create a buffer between piles, active areas and vegetation
Keep your equipment clean
Treat areas where there’s both a vector and disturbance
Collaboration

- Advertise
- Education
- Shared certificates
- Purchasing